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The Mining And Metallurgical Journal

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MUNICIPAL OWNERSHIP.

The ownership of the mineral resources of any country has a most important bearing on the industrial development of this most beneficial source of national wealth. In countries where the minerals are held by the government for the use of people desiring to work them, when operated under liberal laws, we find the greatest amount of mineral development possible. The history of the mineral development of European countries is proof of the fact that in course of time the private ownership of minerals tends to monopoly, or to a worse condition of inaction and neglect. For these reasons, the governments of both Germany and France had to depart from the system of private ownership and assume state control of the mineral operations, so as to receive the most benefit therefrom to the country at large, for private ownership tended to retard the general wellbeing of the industry. In the legislatures of these countries, at the time of the proposed change to government ownership, which necessitated the confiscation of all the minerals of the country under private land to the care of the state; serious predictions were made of the troubles which would result from such a revolutionary measure as that proposed. But these evil events of revolt, riot and civil war, with serious loss to the then private owners, all failed to materialize, for the government granted life leases to the owners who were operating, and those who were preventing the working of other deposits of economic importance, which they claimed the right to do, under their paper title to the minerals, were forced to go to work, or to let the industrious and venturesome miner do so, and peace, industry and prosperity reigned, where heretofore there was inaction and want of enterprise.

The new system of government control proved to be the best in the interests of both capital and labor, just as private ownership was productive of inactivity and idleness, which is the worst form of monopoly—as it deprives the willing and industrious of the right to earn a living by the industry of mining.

The liberal mining laws of the Federal Government of the United States, has been the chief cause of the great production of the vast mineral riches of the west, but it has only been a half measure of protection to the interests of the miner, for a large proportion of the minerals of the country have been allowed to pass into private control, in the form of railway grants, and patents to the surface or agricultural rights, when all the minerals ought to have been reserved for the miner.

A few years ago, our own government passed a law to the effect that in the event of war or civil trouble, the government had the right to step in and operate the coal mines of the country, should the owner be prevented or not willing to work the mines. It has not been necessary during past mining strikes, nor during the present war to put this act in force, but it shows the necessity for governmental control of the minerals at special times; and what is a good measure in time of war or social trouble, is equally good when private interests controlled by an evil, do-nothing policy prevent the prospectors and miners from earning their living. The private ownership of minerals in a majority of cases, and through lapse of time, or death of the original owners, in the end results in the leasing of the minerals to others, which would be the condition under government ownership, so that no hardship can be done should each State of the Union become the owner of all the minerals within the State.

MARKET VALUE AND RAILWAYS.

One of the most peculiar phases of the mining industry is that of the market value of minerals. An ore which is worth a fortune in one place is worth nothing in another. This is largely due to two causes: First, that of location or district, and the second, to means of transportation to a point where the mineral can be utilized. Market value therefore means the value at the place of production. It is not necessary to mention this fact to the miner who is working a shipping ore, but it is highly essential to impress it in the mind of the fresh employee of the freight department of our Western Railway systems, whose duty it is to receive inquiries as to new freight business of the road. His first question generally is, "What is the value of the mineral?" The rates of freight are not quoted then, but after due inquiry as to the local conditions, cost of production, value, etc., and are quoted accordingly, as much as the traffic will bear. When, however, the troublesome factor of opposition is presented by the construction of a new railway, as has occured recently in the completion of the Valley road from San Francisco to Bakersfield, Cal., at a cost of about $4,000,000, the conditions suddenly change, and down go the freight and passenger rates. The following table shows the benefit which will be received by reason of this competition and the reductions made:

BETWEEN SAN FRANCISCO AND BAKERSFIELD.

	Class of Freight.	Valley Road	Southern Pacific	Forced Reduction
1	per 100 lbs.....	$0 83	$1 02	$0 19
2	" " "	77	97	20
3	" " "	72	92	20
4	" " "	68	87	19
5	" ton	11 00	16 40	5 40
A	" "	10 15	16 40	6 25
B	" "	6 75	8 55	1 80
C	" "	5 90	7 60	1 70
D	" "	5 10	5 90	80
E	" "	4 25	5 90	1 65

It is estimated that the opposition of the new road will reduce the gross income of the Southern Pacific in the valley by about $5,500,000 per year.

It is earnestly hoped that the new road will be extended into Southern California, and connections into Utah and Nevada, and give this large desert section an outlet, by reducing freight rates on many mineral products, so as to admit of their being worked. On account of present high freight rates, only gold ores or minerals of high value can be worked at a profit, and the bulky, low-priced minerals, which require shipping to a place of consumption, have at present no market value, hence the urgent necessity for increased railway extension.

STOCKHOLDERS' INTERESTS.

One of the chief causes which has helped to prejudice the public mind against the investment of capital in limited liability companies is the monopoly of management by the directors of the company. In some instances this has been done to such an extent that no regard is placed on the rights of the small stockholders. The management of several Colorado mining companies on the Comstock and at Cripple Creek are cases in point. The obstinate effrontery with which the directors refuse to give information to the small stockholders, has tended to retard the further investment of capital. There is a class of investors with limited means, who are naturally cautious, but will follow the example and lead of a friend who has already invested; and to encourage this class, all the information connected with the enterprise ought to be company property, and not for the benefit of the directors alone, which is too often served up by installments, with great reluctance, at the annual meeting only. This system of telling just as much as the directors deem wise, or in their own interests, is against the principles of partnership. It is a case of the strong coercing the weak, in taking a mean advantage of the confidence of the stockholders. More capital has been prevented investing in the mining industry from this cause than from any other reason. There are happy exceptions where every facility is accorded stockholders of learning all they desire of the operations of the enterprise, and where pressure has not been necessary to squeeze out the truth. When information has to be obtained by forcing it out, and where discontent appears among the stockholders in securing what it is their right to know, the policy is a wrong one and against the investment of capital in mining.

A monthly, or at most a quarterly, report of the manager, indorsed by the directors, ought to be a means of giving information to stockholders of the operations of the company, which should be made compulsory on them under the act of incorporation. Every means possible ought to be taken to satisfy and encourage the investment of capital in stock companies, on account of the magnitude of which it is necessary to conduct many branches of the mining and kindred industries.

SHAFT SINKING ON VEINS.

In the prospect stage of a mine's life history, the common or almost universal custom in the western states of sinking on the vein or deposit, by starting work on the outcrop, has too often the result of producing a shaft with different degrees of the angle of dip, when the vein departs from the vertical. The limited means of the miner in many cases makes this manner of sinking necessary, coupled with the desire to produce ore, and also to learn the nature of the deposit.

When such a shaft comes to dip at any angle between ten degrees to thirty degrees from the vertical with a change of grade, the operation of hoisting becomes slow, dangerous and expensive, through the desire to follow the windings or inequalities of the vein. To make such a shaft safe and more easily operated, by making it of one grade or nearly straight, is at best expensive for timber and often not possible. To operate a shaft of uneven grade between the angles already mentioned, where it is not desired to sink a new one in another place and use the first for an air shaft, the disadvantages must be overcome by the use of guides, as in a vertical shaft. The best form of guides, in such a case of change of grades, is to bolt in place a railroad rail on each side of the shaft, and as these can be fitted or bent to suit the change of dip or angle, they form strong, continuous smooth guides, on which the bucket frame or skip can be made to avoid striking the foot or hanging walls. By placing two small wheels above the rail, and two under it, on each side of the frame of the bucket or skip, the load is held at all places in the center of the shaft. It seldom happens that a prospect shaft makes a good working shaft, unless it is vertical or dips at a flat angle when it is sunk on the dip of the deposit. The desire of the owner to follow a rich seam or stringer of ore is the chief cause of the trouble, as funds will not alway permit of sinking a working shaft in the prospect stage of the mine, irrespective of the grade of ore found. In sinking a pitching or incline shaft, the constant care of the foreman has to be exercised to see that a uniform angle is sunk on by the miners.

The International Mining Congress.

Arrangements have practically been completed by the local committee for the second session of the International Mining congress which is to be held in Salt Lake City, Utah, on July 6th, 7th, 8th and 9th. The first session of the congress held in Denver last year was attended by more than 1000 delegates, and the indications point to an even larger attendance there. To date over 600 delegates have been certified to the secretary by the appointing powers, these 600 representing seventy-seven different communities in twenty-four States. California has chosen her delegates, but their names to the number of about a hundred have not been announced pending advices from those appointed. Gov. Adams of Colorado is now corresponding with the mining men of his State with a view to securing an influential delegation; Wyoming has its appointments yet to make, and several of the Eastern States which will be represented are yet to be heard from. Besides the States west of the Missouri river those represented by the appointments are Arkansas, Florida, Georgia, Kentucky, Virginia, Michigan, Tennessee, Texas, Wisconsin and Pennsylvania. Indiana's delegation is in process of formation and Illinois is expected to take action soon. West Virginia mining men have promised that their State will be represented and Alabama will have some delegates present from Birmingham.

All of the traffic associations except the Central have announced special rates for the occasion, and the Central association has the matter up for action soon. From Chicago and St. Louis and west a single fare plus $2 is granted for the round trip to Salt Lake. From New York, Philadelphia and other Atantic coast territory to Chicago, delegates are given the round trip for a fare and a third. The tourists are offered stop overs in Colorado provided the through trip is made in five days and the round trip in twenty. The railroads also offers a choice of diverse routes. That is, a delegate from Wisconsin or Michigan may go to Salt Lake via the Union Pacific at Omaha and return by one the Rio Grande routes; the man from St. Louis going by way of Kansas City may take the Union Pacific and return by any other line he pleases, or he may start on the Burlington, the rock Island, the Santa Fe or the Missouri Pacific and return by the Union Pacific or Rio Grande. It is expected that this offer of diverse routes will prove a great attraction for the visitors.

For the benefit of California and other coast delegates the Southern Pacific has made a single fare rate for the round trip and the Oregon Short Line has adopted the Western association's schedule for points in its territory—a single fare plus $2 for round trip.

Special excursions have been arranged for the benefit of the delegates, who wish to see the largest camps in Utah with their demonstration of the new cyanide and other processes. One of these will be run to Mercur, a cyanide gold camp where De La Mar's Golden Gate mill shows the largest cyanide plant in this country. The other excursion will be run to Eureka, a silver, gold, copper and lead camp, where mining is carried to great depth.

The social entertainment to be provided will be largely of the informal kind. A special reception will be given at Saltair, the great lake resort, which will be turned over to the delegates. Salt Lake bathing, boating, dancing, music and refreshments will be the diversions. The ladies accompanying the delegates will also be entertained by the club women of Salt Lake during the congress. It is not intended to weary the visitors with set, formal entertainments, but every effort will be made to see that the visit is pleasant.

The business sessions are expected to be of the greatest importance to the mining industry. One of the chief purposes of the congress is to secure the establisment of a national department of mines with a Cabinet officer at its head. This will be the subject of a report from Hon. Lafe Pence of Colorado, chairman of the special committee named at the Denver congress last year. Mr. Pence will detail the work done with Congress and report on the prospect of success.

Besides these, there will be papers by technical expert on practical subjects affecting mine management, such as mining and treatment of various classes of ores, smelter methods and charges, stoping systems, shaft and tunnel cost and pumping and ventilating systems.

The programme as outlined is intended to cover every subject of general interest either to the investor, the manager or the practical working miner. Some of the most prominent mining men in the country are coming as delegates and the discussions promise to be of the greatest value. The congress includes every branch of the business—coal, iron, lead, copper, as well as the precious metals.

Utah will have an exhibit of its mineral and allied products, showing gold, silver, lead, copper and iron ores; coal, sulphur, salt, antimony, asphalt and other natural resources on a commercial scale. All of the samples will be of a size to show the character of the vein or deposit from which they were taken. With this exhibit will be shown a working cyanide plant treating low-grade gold ore from Mercur.

The wide field now embraced by the International Mining Congress viz: the mining, treatment and marketing of *all* mineral products, and the discussion of all subjects relating thereto increases the importance of the organization immeasurably, and it is hoped and believed that at the sessions designated in this official call, many thousand delegates and interested visitors from all sections, and representing every phase of the mining industry, will be in attendance.

It is earnestly requested that the Governors of States and Territories, all friendly Nations, County Commissioners, Mayors of Cities and Towns, all Mining, Commercial, Trade and Labor Organizations, see to the appointment of delegates at an early date who will attend the Congress and contribute to its interest.

BASIS OF REPRESENTATION.

The Governor of each State and Territory to name 30 delegates at large.
The County Commissioners of each County to name 5 delegates.
The Mayor of each City and Town to name 5 delegates.
And one additional for each 10,000 population or fraction thereof.
Each Mining Bureau.....to name 5 delegates.
Each Mining Exchange.....to name 5 delegates.
Each Real Estate Exchange.....to name 5 delegates.
Each Chamber of Commerce.....to name 5 delegates.
Each Board of Trade.....to name 5 delegates.
Each Miner's Union.....to name 5 delegates.
Each Trade and Labor Assembly to name 5 delegates.
All other Commercial Bodies.....to name 5 delegates.

The following is a list of the officers and members of committees:

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United States Mineral Production in 1897.

From the editor's advance sheet of the production table to appear in the annual volume of *The Mineral Industry: Its Statistics, Technology and Trade in the United States and Other Countries*, Vol. VI., 1897, we take the following, which we think is the most authentic and comprehensive table of statistics of our mineral production ever yet published. The mineral and metal production of the United States here recorded was the largest in the history of this or any other country; they almost equal in value the production of all Europe.

The economic details published in the *Mineral Industry* volume show that the United States is rapidly attaining the point where it will be the greatest exporter of minerals and metals of all the commercial nations.

GOLD.

The production in the United States increased from 2,558,433 troy ozs. ($555,886,209) in 1896 to 2,864,576 ($59,210,795) in 1897. The greater part of the increase was due to Colorado, which State is credited with an output of $19,579,637, and now leads all others in point of gold production. The Cripple Creek mines furnish upward of 50 per cent. of the total yield of the State. South Dakota and Alaska made increased outputs, owing to the extension of operations at the huge mines at Deadwood and on Treadwell Island. The large production of the De Lamar mine caused a considerable increase in the figures for Nevada. There was a small increase in the output of Arizona and Montana. Contrary to expectations at the beginning of the year, there was a falling off in production both in California and in Utah. American refiners turned out 584,983 troy ozs. ($12,091,599) of fine gold from ores and bullion imported chiefly from Canada and Mexico, making a total addition of $71,302,304 to the domestic supply of gold during the year.

LEAD.

The production of lead from ores mined in the United States increased from 174,692 short tons (10,411,643) to 197,718 ($11.784'093).

QUICKSILVER.

The output fell off from 29,863 flasks ($1,-104,997) in 1896 to 26,079 ($991,002) in 1897. There have been no new discoveries of late years in the United States which have come to anything, and the entire production continues to be from California. The decrease in 1897 was due chiefly to the permanent closing of the Sulphur Bank mine, the temporary suspension of operations in the Mirabel, or Standard mine, and the Altoona, and the diminished production of the Great Western and Abbott.

SILVER.

The domestic production decreased from 58,488,810 troy ozs. in 1996 to 56,457,292 troy ozs. in 1897.

There was a large increase in silver production from Butte, Montana, and the Coeur d'Alene. Colorado and Utah showed a falling off in production, while there was an increase from Montana and Idaho. Besides the silver produced from ores mined in the United States, American refiners turned out 40,318,-776 troy ozs. of silver derived from ores, bullion and silver-lead imported from Canada and Mexico. The average price of silver in New York was 59.79c. per fine oz. in 1897, against 67.10c. in 1896.

MINERAL PRODUCTION OF THE UNITED STATES IN 1897.

Compiled for *The Mineral Industry*, Vol. VI., by Richard P. Rothwell, editor of the *Engineering and Mining Journal*.

Number.	PRODUCTS.	Customary Measures.	1896. Quantity. Customary Measures	1896. Quantity. Metric Tons.	1896. Value at Place of Production. Totals.	1896. Value at Place of Production. Per M. Ton.	1897. Quantity. Customary Measures	1897. Quantity. Metric Tons	1897. Value at Place of Production. Totals	1897. Value at Place of Production. Per M Ton.
	NON-METALLIC.									
	Abrasives:									
1	Carborundum	Sh. T...	595	539	$ 365,612	j $0.68	621	563	$ 153,812	j$ 0.27
2	Corundum	Sh. T...	250	227	35,000	154.19	230	209	82,200	154.07
3	Crushed Steel	Sh. T...	328	296	50,624	171.00	324	294	51,924	176.00
4	Diatom. earth	Sh. T...	3,540	3,211	34,200	10.65	3,000	2,721	30,400	11.17
5	Emery	Sh. T...	1,550	1,406	108,500	77.17	1,500	1,361	105,000	77 15
6	Garnet	Sh. T...	2,440	2,214	85,400	38.57	2,260	2,050	79,100	38.57
7	Grindstones	Sh. T...	31,301	28,396	294,338	10.36	36,651	33,250	366,675	11.00
8	Pummice	Sh. T...	Nil.	.....	.....	.....	1,700	1,542	8,500	5.51
9	Quartz crystal	Sh. T...	6,000	5,432	16,500	3.04	6 000	5,432	16,500	3.04
10	Tripoli	Sh. T...	1,405	1,275	4,823	3.79	1,631	1,479	5,475	3.70
11	Whetstones	.....	.....	.....	105,201	.....	.....	.....	80,220	.....
12	Alum	Sh. T...	14,090	12,782	422,700	33.07	15,456	14,021	463,680	33.07
13	Aluminum sulphate	Sh. T...	42,240	38,319	1,056,000	27.56	46,345	42,038	1,158,875	27.56
14	Ammonium sulphate	Sh. T...	257	233	10,280	.....	3,111	2,822	124,440	.....
15	Asbestos	Sh. T...	716	656	12,670	19.14	770	698	15,400	22.06
16	Asphalt	Sh. T...	20,414	18,519	362,590	19.58	27,397	24,397	486,620	19 58
17	Asphaltic limestone	Sh. T...	5,090	4,536	55,000	12.12	2,390	2,168	11,450	5.28
18	Bitumin's sandstone	Sh. T...	51,956	47,134	132,500	2.82	41,185	37,353	125,555	3.36
19	Barytes	Sh. T...	21,900	19,867	87,600	4.41	27,316	24,781	109,264	4.41
20	Bauxite	L. T....	17,096	17,369	42,740	2.42	20 590	20,919	41 180	1.97
21	Borax (crude)	Sh. T...	13,320	12,084	266,400	22.04	19,400	17,599	388,000	22.05
22	Bromine	Lb.....	559,285	253	143,074	j0.57	487,149	221	136,402	j0.62
23	Calcium carbide	Sh. T...	860	780	48 000	61 54	1,925	1,746	134,750	77.17
24	Cement, nat. hydraul	Bbls (a)	7,407,311	1,007,980	4,385,962	4.35	7,781,377	1,058,883	4,127,124	3,90
25	Cement, Portland	Bbls (b)	1,577,283	286,181	2,502,479	8.74	2,272,971	412,405	3,578,839	.....
26	Cement, slag	Bbls (c)	Nil	.....	.....	.....	40,000	6,350	60,000	9.45
27	Chrome ore	L. T....	702	713	7,775	10.90	50	51	550	10.75
28	Clay Products	Sh. T...	.....	.....	65,000,000	.....	.....	.....	q60,000,000	.....
29	Coal, anthracite	Sh. T...	48,133,930	42,617,101	86,682,249	2.03	52,645,133	47,759,665	85,857,717	1.79
30	Coal, bituminous	Sh. T...	139,468,659	126,525,967	113,401,602	0.89	147,557,559	133,894,599	120 505,382	0 89
31	Coal, cannel	Sh. T...	54,661	49,588	146,491	2.95	56,511	51,267	153,145	2.98
32	Coke	Sh. T...	10,369,015	9,406,880	17,311,823	1.84	12,742,340	11,563,673	23,367,879	2.02
33	Cobalt oxide	Lb.....	12,825	16,817	17,314	j2.98	19,300	18,754	32,810	j3 75
34	Copperas	Sh. T...	11,170	10,133	52,662	5.19	11,924	10,818	56,565	5.23
35	Copper sulphate	Lb.....	48,732,840	22,150	1,933,225	88.18	51,012,945	23,139	2,040,518	.....
36	Feldspar	L. T....	24,907	25,305	124,251	4.91	20,900	21,234	113,773	5.36
37	Fluorspar	Sh. T...	6,000	5432	48,000	8.83	9,025	8,187	74,456	9.09
38	Fullers earth	Sh. T...	11,326	10,275	68,476	6.66	17,049	15,467	91,634	5.93
39	Grahamite (k)	Sh. T...	1,282	1,163	38,460	33.07	1,756	1,592	52,680	33.09
40	Graph te, crystalline	Lb.....	405,006	j183,709	18,225	j.10	093,148	j450,487	14,691	j.10
41	Graphite, amorphous	Sh. T...	574	520	3,800	7.40	1,200	1,090	11,400	10.42
42	Gypsum	Sh. T...	195,553	177,405	583,136	3.29	223,061	202,360	711,952	3.57
43	Iron ore	L. T....	16,000,056	16,256,057	31,200,889	1.93	18,316,967	18,610,038	31,138,844	1.61
44	Litharge	Sh. T...	6,500	5,897	540,300	91.57	9.900	8,981	899,100	100.15
45	Magnesite	Sh. T...	2 067	1,876	9,715	5.12	1,907	1,730	7,628	4.41
46	Manganese ore	L. T....	162,526	165,126	339,083	2.05	156,787	159,296	332,700	2.09
47	Mica, ground	Sh. T...	570	517	9,687	18.73	2,692	2,442	38,218	15.65
48	Mica, sheet	Lb.....	17,630	j7,997	12,528	j1.57	92,335	j41,883	45,615	j1.59
49	Mineral wool	Sh. T...	6,858	5,309	61,614	11.60	5,667	5,141	45,494	8.81
50	Monazite	Lb.....	17,500	8	875	109.37	40,000	18	2,000	111.11
51	Natural gas	.....	.....	.....	10,000,000	.....	.....	.....	10,000,000	.....
52	Paints, metallic	Sh. T...	31,865	28,908	342,167	11.15	35,293	32,025	370,594	11.26
53	Paints, ochre, etc	Sh. T...	17,835	16,179	178,798	11.05	11,151	10,116	110,165	10.99
54	Paints, venetian red	Sh. T...	5,908	5,309	93,586	17.62	4,506	4,149	55,690	10.96
55	Paints, white, red lead	Sh. T...	95,955	87,049	7,868,310	90.39	103,233	93,654	9,291,150	99.21
56	Paints, zinc oxide	Sh. T...	15,863	14,391	1,189,725	87.67	26,262	23,825	2,109,960	88.18
57	Petroleum (crude)	Bbls (d)	55,254,795	7,790,425	65,753,206	8.50	56,985,643	7,972,579	41,894,962	5.62
58	Phosphate rock	L. T....	937,372	952,370	2,812,116	2.95	905,089	920,577	2,718,240	2.65
59	Precious stones	.....	.....	.....	200,000	.....	.....	.....	101,030	.....
60	Pyrites	L. T....	109,282	111,030	292,626	2.63	128,468	135,523	379,699	2.83
61	Salt	Bbls (e)	15,707,908	1,900,017	5,328,250	2.67	13,183,524	1,670,522	4,859,364	2.91
62	Silica sand and quartz	L. T....	720,399	731,925	1,076,038	1.47	750,000	762,000	1,125,000	1.48
63	Slate roofing	Sq'es...	699,100	.....	2,260,862	n3.23	865,372	.....	2,595,580	n3 01
64	Slate, manufactures	.....	.....	.....	467,578	.....	.....	.....	547,645	.....
65	Soapstone	Sh. T...	14,350	13,018	143,500	11.02	18,971	17,213	189,710	10.91
66	Soda, natural	Sh. T...	3,000	2,722	65,000	23.88	5,000	4,535	110,000	24.25
67	Soda, manufactured	M. T....	.....	157,476	3,621,925	23.00	.....	277,972	5,774,656	20.84
68	Stone for building	.....	.....	.....	30,599,894	.....	.....	.....	20,000,000	.....
69	Stone limestone (flux)	L. T....	3,794,175	3,854,882	1,669,437	0.43	1,247,658	4,315,651	1,868,983	0.43
70	Strontium sulphate	Sh. T...	Nil	.....	.....	.....	40	36	200	5.55
71	Sulphur	L. T....	3,800	3,861	72,200	18.70	1,690	1,717	34,814	20.27
72	Sulphuric acid	Sh. T...	1,019,501	924,855	17,331,517	18.74	1,128,741	1,022,987	21,446,979	19.19
73	Talc, common	Sh. T...	7,098	6,439	63,585	9.87	9,563	8,675	82,79	9.54
74	Talc, fibrous	Sh. T...	51,816	47,007	256,080	5.45	58,835	53,376	288,185	5.39
75	Uranium ore	Sh. T...	Nil.	.....	.....	.....	17	15	9,010	600.66
76	Zinc ore, exported	L. T....	2,324	2,361	47,403	20.08	9,251	9,399	211,350	22.48
77	Est. prod. unspecified	.....	.....	.....	5,000,000	.....	.....	.....	5,000,000	.....
	Total non-metals	.....	.....	.....	484,999,136	.....	.....	.....	481,692,497	.....
	METALS.									
78	Aluminum	Lb.....	1,300,000	j589,676	$520,000	j 0.85	4,000,000	j1,814,400	$1,400,000	j 0.77
79	Antimony	Lb.....	1,226,000	556	84,717	152.37	1,500,000	680	107,250	157.72
80	Copper (m)	Lb.....	479,806,183	217,639	51,003,397	234.45	510,190,719	231,421	56,325,055	243.39
81	Gold	Oz. (f)..	2,558,433	j79,576	52,886,209	j664.60	2,864,576	j89,092	59,210,795	664.60
82	Iron, pig	L. T....	8,623,127	8,761,097	21,577,619	10 45	9,632,680	9,807,123	92,677,312	9.45
83	Iridium	Oz.....	.....	.....	.....	.....	20.25	.....	606	.....
84	Lead, value at New York	Sh. T...	174,792	158,479	10,411 643	54 07	127,718	179,368	11,784,033	65.73
85	Nickel	Lb.....	17,170	j7,788	4,464	j0.57	33,700	j15,286	11,668	j0.76
86	Platinum	Oz. (f)....	200	j6.21	2,806	450.89	200	j6.22	3,000	482.39
87	Quicksilver	Flks (g)	29,863	1,036	1,104,9971	1,066 58	26,079	963	991,002	1,026.94
88	Silver, commercial value	Oz(f)....	58,488,810	j1,819,208	39,245,992	j21.58	56,457,292	j1,756,004	33,755,818	19.22
89	Zinc	Sh. T...	77,637	70,432	6,117,796	86.86	100.387	91,070	8,271,889	90.83
	Total metals	.....	.....	.....	292,959,625	.....	.....	.....	264,539,485	.....
	Grand totals	.....	.....	.....	727,958,761	.....	.....	.....	746,230,982	.....

(a) Barrels of 350 lb.; (b) 400 lb.; (c) 200 lb.: (d) 42 gal.; (e) 280 lb.. (f) Troy ounces. (g) Flasks of 76½ lb. (h) Bitumenous coal includes brown coal and lignite. The anthracite production is the trial for Pennsylvania, Arkansas and Colorado. (i) estimated. (j) Kilograms or per kilogram. (k) Including bitumen from Texas. (m) The value of the copoer pro luction is calculated at 0.25c. per lb. less than the verage price of Lake copper at New York. (n) Value per square. (p) Value per cubic foot. (q) This figure is only approximate and will be revised.

Abbreviations: Sh. T., short tons (2,000 lb.); L. T., long tons (2,240 lb.); M. T., metric tons (2,204.6 lb.); Sq'es, squares (100 sq. ft., lapped and laid.

THE HALLIDIE ENDLESS WIRE ROPEWAY.

The Hallidie Ropeway consists of a single endless moving wire rope passing around horizontal grip pulleys or sheaves at the extremeties of the line and being supported at intervals by towers carrying supporting sheaves. To this rope the carriers are securely fastened, and hence as the rope travels it moves the carriers and their loads with it.

The ore from the mine is dumped into bins near the Ropeway, and from them loaded either by hand or mechanically into the moving buckets of the Ropeway. From the terminal the line passes over the sheaves on the towers, which are set one hundred feet or more apart, as the local conditions require. Where there are canyons or valleys to be crossed the span is increased, as the tension in the rope will lift it so high above the ground that it will be impossible to place a tower. These spans do not in any way interfere with the working of the line, and there are lines working satisfactorily which contain spans over 2,000 feet long. The lower terminal containing the horizontal sheave, is placed over the ore bins in such a position that the buckets dump their loads into the bins. From the bins the ore can be drawn into cars, wagons, etc., for further transportation, or sent directly to the milling machinery. Having discharged their loads, the rope and buckets pass around the terminal and up over the sheaves on the other side of the towers to the upper end, where they are reloaded.

The dead weight and cost of the machinery in this system is reduced to a minimum; as there is but one rope employed which travels with the load attached to a clip fixed to the rope, the weight of the material employed in its construction is about 60 per cent. of the weight of the apparatus where the two ropes (Standing and Hauling Ropes) are employed, and consequently cost less in proportion, both in first cost and maintenance.

In transporting the material used in constructing a Ropeway over the trails or roads of the mountains, there is consequently a considerable item of expense saved on transportation and freight alone.

The care of machinery and apparatus in the mountains, remote from repair shops, mechanics and material is a matter of serious moment, and anyone who has had experience in such a region can fully appreciate this. Reduce the parts liable to get out of order and you reduce the cost of maintenance and repairs and increase the efficiency of any apparatus that has to be manipulated largely by unskilled labor.

VIEW OF A TOWER BUILT ON THE HALL MINES ROPEWAY IN BRITISH COLUMBIA.

The terminal structures consits of heavy timbers, thoroughly framed and bolted together. To it are fastened the boxes for the end sheave or grip pulley and the castings for the small sheaves or fair leaders that guide the rope onto the large terminal sheave. In most cases only the bolts for the structure are shipped, and the timbers are obtained near the site of the Ropeway and framed on the ground. Occasionally the timber work is furnished also, in which case the parts are all properly marked and the frame knocked down for shipment. Where it is necessary to pack the timbers by mules the long ones are cut in two and furnished with splice plates.

Each frame contains 1,515 feet B. M., making ample allowance for all tenons but none for waste.

The upper terminal is usually anchored securely to the bed rock and the rope led out horizontally for loading and until it is high above the ground.

The grip pulley is used to transmit power either to or from the rope. To the rope when it is necessary to drive the Ropeway by power, and from the rope when a line is operated by gravity and furnishes power to drive other machinery, or the extra power is absorbed by the brake attached to the Grip Pulley. This Pulley has been improved from time to time, and three patents have been issued to Mr. Hallidie for the same, the last of which is dated September 27th, 1892.

SEVENTY-FIVE FOOT TOWER BUILT ON THE HALL MINES ROPEWAY IN BRITISH COLUMBIA

There are a number of grips or hinged jaws attached to the periphery of the pulley into which the rope enters, and pressing on the bottom of the jaws causes them to grip or close over the rope, the amount of gripping power being determined by the length and travel of the jaws and the pressure from the rope.

Formerly, the jaws of the grip rested in sprockets cast in the periphery of the pulley but it was found impossible to get the pockets of uniform depths and many of the grips were useless in consequence. In the improved Grip Pulley the pockets are done away with and a continuous groove takes their places, insuring uniformity of distance, duty of every grip, and greater simplicity in construction. The grips are held in position by webs cast on them, which fit loosely into slots in the outer edge of the pulley. The Grip Pulley and attachments are built up of parts which can be separated and put in parcels to pack on mule back, as are all the other parts of the Hallidie Ropeway. Every part is marked, and can be put together on the ground by an intelligent mechanic.

The power to operate the Ropeway is derived either from the weight of the material being transported or from some external source of power, be that a line shaft, an engine, a water wheel or other prime mover. When the point of discharge is lower than the loading point, and the delivery is five tons or more per hour, the line will operate by the weight of the descending load under ordinary conditions, provided the grade exceeds eight degrees or one fall in seven horizontals.

In such cases the speed of the line is controlled by means of a wood-lined band brake, operated by a hand wheel and screw and clamping the brake wheel bolted to the grip pulley.

For heavy lines a brake may be placed on both sides of the grip pulley, and occasionally a grip pully and brake is used at the lower end also, but usually in gravity lines a plain sheave is used there. The man having charge of the loading attends to the brake also.

Where the line is flatter than eigth degrees, or the loading point is lower than the discharge end, it is necessary to supply the line with power from outside, either from the mill shaft or from a special motor. For this purpose a bevel gear is bolted to the grip pulley instead of the brake wheel and it is driven by a bevel pinion on a countershaft.

When the angle of descent is very great, the descending load furnishes sufficient power to carry back and up to the mine such material as may be needed; and, in several lines already constructed, this saving, when taken into account, has been so great that it not only brought the cost of transporting the ore to

TRANSPORTING THE CABLE OF THE SAN JUAN MINING COMPANY FROM BAHIA ANGELES, LOWER CALIFORNIA, MEX., TO THE MINES OVER A MOUNTAINOUS COUNTRY.

nothing, but has actually been a source of revenue.

Again, in cases where power is needed at the mine for pumping crushing ore, etc., the Ropeway can be used either to furnish the power or to transmit it from the mill end.

The Tightening Apparatus, for keeping the line taut under all conditions of temperature and load, consists of a strong wooden box filled with rocks or old iron attached to the end of a wire rope which passes over sheaves, suitably arranged, to the rear of the terminal which is set on wheels running on a track. By this means any slack occurring in the line is immediaty taken up by the counterweight.

The Intermediate Towers are built of substantial timbers generally twenty feet long making a tower about eighteen feet high. These keep the rope sufficiently high so that the buckets will clear a reasonable amount of bushes and snow.

TRANSPORTING THE CABLE OF THE SAN JUAN MINING COMPANY FROM BAHIA ANGELES, LOWER CALIFORNIA, MEX., TO THE MINES OVER A MOUNTAINOUS COUNTRY.

To the ends of the cross-arms of the towers are fastened the iron station frames which carry the supporting sheaves for the rope.

Where the nature of the ground is uneven, a higher station is often needed, as seen in the distance of illustration given, in which case the regular A X tower is placed on a rectangular base to bring it up to the required height. Such a tower seventy-five feet high is shown in the accompanying illustration. This is a better arrangement than to design a special tower for each, as all the upper parts can be framed from the same templates and the bases built of rough timber on the site of the towers.

The longest line built by the California Wire Works is one for the Hall Mines, British Columbia, which is 23,797 feet long, nearly four and one-half miles. The illustrations herewith are taken from photographs of this line. Much of the line is through dense forests, and a path two hundred feet wide had to be cut for the Ropeway as a protection against forest fires and falling trees. This cut is plainly shown in the views.

The rope is usually shipped on reels holding several thousand feet, but where the upper part of the line is inaccessible to wagons, the rope, like the rest of the machinery, must be packed so that it can be loaded on mules. Cables can be coiled so that they can be easily transported in this way even when thousands of feet long and weighing several tons. The accompanying illustrations are from photographs of trains of mules packing cables along the trail from Bahia Angeles, Lower California, Mexico, to the mines of the San Juan Mining Company, over a very rough and mountainous country, where it is impossible to build a wagon road, at any cost within reason. Each animal carries about two hundred and fifty pounds, including the piece of slack rope fifteen or twenty feet long connecting its load to the next one in the rear. This piece is usually held up by a native so that it will not drag on the ground.

This tramway is 15,225 feet long. The first 2500 feet from the upper terminal is over a comparatively smooth route. From this point 2500 feet farther on it travels over a considerably rougher country. The next stretch from a point 5000 feet from the upper terminal to a point 8000 feet from upper terminal, the surface of the land is very precipitious deep, defiles are spaned by the tramway with towers over 640 feet apart in different places. From the 8000 feet point to the lower terminal the line is over an almost level country.

The Mechanical Loader manufactured by this company and described in our issue of January 1st 1898, is the simplest and most efficient mechanical device invented for the purpose.

There is nothing to get out of order and very little to wear out. It is placed in front of the ore bin and receives the ore from the chute, whence it is discharged into a loader hopper at the foot of a pendulum.

TRANSPORTING THE CABLE OF THE SAN JUAN MINING COMPANY FROM BAHIA ANGELES, LOWER CALIFORNIA, MEX., TO THE MINES OVER A MOUNTAINOUS COUNTRY.

Production of Asphaltum in '97.

An abstract of the report of E. W. Parker, statistican of the U. S. Geological Survey, on the production of asphaltum in the United States during 1897, shows that the aggregate production of asphaltum, bituminous rock, etc., in 1897 amounted to 75,945 tons, valued at $664,632. The production of ordinary crude asphaltum in California decreased from 6500 tons in 1896 to 5971 tons in 1897, but the average price per ton was practically the same in the two years. The production of California, Colorado and Utah in 1897 was as follows: California 68,650 value, $598,502. Colorado and Utah, 3700 tons, value, $47,500. Total, 72,350 tons; value, $646,002.

The increase in the domestic lead production in 1897 was due chiefly to southeast and southwest Missouri and the Coeur d'Alene district of Idaho. The production of lead in Colorado was 40,000 tons, against 41,009 in the previous year.

CORRESPONDENCE

CALIFORNIA.

ISABELLA, KERN CO., May 26, '98.

EDITOR JOURNAL:—The three mills in this vicinity are busily engaged in the production of bullion. The Hooper mill, immediately across Kern River from this place, has recently been supplied with a new kind of concentrator which gives more complete satisfaction than anything before tried in this vicinity, and as much of the gold is contained in the sulphurets here, it is likely that other mills will discard the Frue and other vanners for this new appliance.

The Kern-Rand Company has laid out a canal in the gorge of the South Fork of Kern River, at the point where the stream enters the valley, twenty miles up the valley from this place, with the idea of generating electricity for Randsburg and other camps not supplied with water power. The company will be able to utilize a fall of 700 feet on a stream whose minimum flow is sixty cubic feet per second. Besides this, there are two factors which tend to render this power capable of indefinite enlargement: First, Whitney Creek in past ages constituted the source of the South Fork, but a slide filled the channel and threw it over into a gulch flowing into the main river. For many years the farmers in the South Fork Valley have maintained a tunnel through this slide, in order to replenish the supply of water for irrigation during the fall months. Just now the tunnel is out of repair. Second, on the head of the South Fork is one of the noblest sites for a large reservoir in the state of California. The engineers after completing the survey of the canal, which is to be above three miles in length, have started on a survey of the transmission line to Randsburg, and will probably reach that place within the next week.

Recently, several Los Angeles mining men have been looking over this locality.

At the present time the Hooper mill is running on a batch of rock from a new discovery on the west branch of Badfish Creek, south of this place. I learn from Mr. Hooper that some twenty-three tons of the selected rock is expected to yield somewhere near $300 per ton, while a large quantity of low grade rock promises to pay a small profit. This mine is owned by Hardeny & Co.

Mr. Cline has lately struck a small vein of high grade rock, just west of the Contact just southwest of this place. Respectfully,

SEPHEN BARTON.

Tuolumne Mines.

The Eastern Belt mineral and auriferous section of Tuolumne county is very extensive. All that portion from Sonora to the east, northeast and southeast is comprised in and named East Belt. The formation is granite, syenite and porphyritic granite, and several other varieties, also slate (metalic) and slate (metamorphic.) The dykes are grano diorites, diorites and diabase, with intersected belts of quartzite. The Eureka vein is a large brecciated or conglomerate, in which the fragments are angular and easily distinguished on examination. On this lode are situated the Eureka Con., Lady Washington, Richards, Grizzly, Providence, Maine, Gold Hunter, Buchanan, and many others, all south of the Eureka. To the north we fine the Newton, Laura and North Star, Columbia, Hibbins, Belleview and Italian Camp mines. Course north 45 degrees or generally so. The Confidence lies farther north, is a large fissure, 90 feet wide, carrying three veins, foot wall, hanging and center. This lode is traceable for many miles. Course 12 degrees, west of north, with variations. To almost the foot of the Sierras gold quartz ledges are found. Fresh discoveries are being made continually. It is only a question of time till this vast field will be thickly populated by the explorer and miner. This section is well timbered and watered, with quartz veins in every direction.

THE HIBBING MINE.

Their shaft is sunk 180 feet, with a drift run south 119 feet. The vein is six feet in size. There is a very neat and compact hoist and mill. The hoist is operated by a 12-horse-power gasoline engine.

THE CONFIDENCE MINE.

This grand old property is now in full blast, the main shaft being fully repaired to a depth of 810 feet on the incline. The main level is 2,200 feet long.

THE LITTLE BEAUTY MINE.

A tunnel has been entered over 100 feet; from the vein was extracted 57 tons of rock that paid $56 per ton. The vein is found from 12 to 16 inches in width.

THE DREISAM G. M. CO.

Has an incline shaft down 270 feet, a vertical shaft 110 feet, which will be connected with the incline, and be the future working shaft of the mine. The vein is found from 18 inches to over two feet, and is worth $200 in free gold per ton.

THE CARLOTTA, CHEROKEE.

This shaft is sunk 200 feet deep and drifted northeast about 30 feet. Vein 8 to 16 inches wide.

THE PENNSYLVANIA.

Same owners as the Carlotta, is also sunk 200 feet. No. 1 level north is drifted 120 ft. No. 2 south is run 30 feet. No. 2 drift north is entered 40 ft. Vein is found from 10 inches to 2 feet wide. ARGUS.

JULIAN, CAL., June 7, 1898.

EDITOR JOURNAL:—Frank Holland of the Elevada mine is having 150 tons of ore milled at the Ranchita Mill, which will average $40 to the ton. The ledge from whence the ore came is 3 feet wide, and was taken out while cross-cutting a tunnel to tap the vein at a depth of 300 feet.

Cave J. Couts, owner of the Ranchita property, struck a fine body of ore in the shaft about 300 feet from the surface. The ore is of a high grade. Mr. Couts has let a contract to H. H. Davis to sink the shaft 100 feet deeper. Frank Murphey also secured a contract from Mr. Couts to sink a 100-foot shaft on a parallel ledge to the Ranchita.

Captain Farnsworth of the North Star mine has let a contracts for 100 feet of work on his mine, making the shaft when completed 300 feet deep. The North Star is producing some rich ore at present.

Bailey Bros., who own the Ready Relief and Redman mines, are sinking a shaft to the depth of 500 feet below the surface of the Ready Relief. The shaft when completed will be 200 feet below the present workings of the Ready Relief, and about 100 feet below the old workings of the Redman. Ore from both mines will be hoisted through this shaft. Messrs. Bailey Bros. are working their 10-stamp mill on ore from the Ready Relief mine and some custom work.

The Hubbard mine, owned by McDowell & Co., is producing some firstclass ore.

The Fraction mine, owned by the Venturina Mining and Milling Co., and leased by Robt. Melrose and Eugene Farley, are taking out good ore from their tunnel.

Venturina Mining and Milling Co. are running tunnel to develop their mines.

F. Gahnal is repairing the mill on the Cincinnati Belle mine, and getting everything in readiness to open the mine.

L. N. Bailey has organized a company to run a tunnel in on the Kentuck mine. Burleigh Rock Drills will be used to prosecute the work. Machinery is already on the ground.

Work of repairing and retimbering the shaft is going on at the Helvetia mine, preparatory to commencing some extensive development work.

W. S. Waterman, it is reported, will continue his tunnel into the Blue Hill group, which has remained idle for some years.

Bennett & Isham are working the Roscoe claim, recently discovered by them. Their prospects of getting a fine body of ore are good.

Judge J. B. Gardner has been developing his Richmond mine. He has some good ore; though it is principally sulphurettes there is some free milling. The ledge is from 3 to 4 feet at bottom of shaft. One hundred and fifty feet of an inclined level has been run on the ledge, attaining a depth of 100 feet from surface. A 50-foot shaft or winze has been completed from the bottom of the level, showing up a large body of ore. Mr. Gardner also has an air-shaft connecting the bottom of the level with the surface, insuring perfect ventilation.

Mr. Beach of Escondido has secured the tailings of the Ranchita mine from Mr. Couts on a basis of one-half or 20 per cent. royalty. He will work them by the cyanide process.

"RICHMOND."

MONTANA.

BUTTE, MONTANA, June 3, 1897.

EDITOR JOURNAL: This city is having pretty lively times at present. The Butte & Boston company is in heaps of trouble, but is in a fair way of coming out all right. On May 24th Judge Knowles granted the Butte & Boston an injunction, enjoining the Montana Ore company and the Chile Gold Mining company from working in the Michael Devitt ground. The Montana Ore Purchasing company then steps in and secures an injunction, restraining the Butte & Boston from a portion of the Michael Davitt property. Both actions are the outcome of damage suits.

Judge Lindsey, who appointed R. J. Watson guardian of James Larkin, an insane person, gave Mr. Watson authority to bring action against the Butte & Boston company, to recover possession of a two-thirds interest in the Tramway mining claim and a half interest in the Snohomish, a good piece of property secured by the Butte & Boston Co. five years ago from Larkin, also an accounting for all ores taken out since that time. Watson charges that Larkin was insane when he made the deed and the parties who obtained it knew that his mind was unbalanced. John J. McHatton is the attorney for Watson and is well known in Butte.

While working on the 200 level of the Silver Bow mine last week, Lewis Allen, a well-known miner, fell, striking his back on the car track, receiving a severe injury.

The Monitor Tunnel Co., recently reorganized, has a number of good mines in Park Canyon county and propose to develop them very extensively. A 500 foot shaft will soon be sunk on their properties. "MINER."

Miscellaneous Mining News.

ALASKA.

A Rare Specimen.

Mr. Healy is the custodian of one of the richest pieces of free-milling ore that has been seen in Wrangel for years. The specimen was brought to Wrangel by an Indian, and given to the pioneer store keeper for safe keeping. As an indication of the richness of the discovery, it may be said that the specimen is but two inches in width by two and one half inches in height, and contains nearly $35 in pure gold. The specimen is incrusted on all sides with the dull yellow metal, and the contrast with the pure white quartz in which it is found shows the former off to the fullest advantage. Mr. Healy is reticent as to the source from whence this specimen came, and will not give even an approximate description of the region. The prediction of mining men who have seen the specimen is that if the body of ore is one half as rich as the specimen, the mine will be one of the richest on the coast.—*Stikeen River Journal.*

A Telephone Company.

The Fort Wrangel and Glenora Telephone, Telegraph and Electric Lighting Company has been incorporated, with headquarters in Wrangel. The directors are B. A. Stephens, W. D. Grant, John E. Sales, H. E. Powell, and C. O. Bates. The company has sufficient capital to carry out its objects.

ARIZONA.

A three foot strike of rich ore has been found in the Erie Mine, Cedar district, Mohave county.

Six 200-pound bars of bullion from the White Hills Company, of Mohave county, were recently shipped to San Francisco.

The tailings of the Mammoth mine, in Pinal county, have been purchased by Nicola Anderson, the Western agent for the McArthur-Forrest company, the inventors of the cyanide process for the extraction of gold. Mr. Anderson will erect a 120 ton plant, and it will be able to run to its full capacity on the Mammoth tailing dump for the next three years.

CALIFORNIA.

AMADOR COUNTY.

William Nevills Jr. stated a few days ago that he would soon go to Jackson and reopen the Moore mine. This would seem to indicate that the litigation now on between the owners is to be settled without the delay attending a trial.

The mill at the Kennedy, at Jackson, which consists of forty stamps, is being repaired, ten stamps at a time. New mortars, made by Knight & Co. of Sutter Creek, are being put in place of the old ones. Ten stamps have been overhauled and put in good condition and the woodwork for the other thirty is being gotten out, so that when work is commenced on the others the least possible delay will be necessary.—*Amador Ledger.*

CALAVERAS COUNTY.

The Champion mine at West Point has resumed operations after a lapse of nearly twenty years. The gentlemen who have taken it in hand evidently mean business, judging from the systematic way they have started in. A new gallows frame has been erected, the shaft has been cleaned out and retimbered down to the water line and a new six-inch pump placed in position. A two-stamp, triple discharge mill is ready to run. A part of the old dump has been sorted, yielding several tons of first-class ore.

ELDORADO COUNTY.

To save the expense of hauling and shipping the sulphurets of the Gentle Annie to San Francisco for reduction. Melton & Parlow have decided to treat them by the cyanide process at the mine. For this purpose they are now constructing a plant upon which Frank Gerbode is at work.

KERN COUNTY.

Much has been said in the press lately about the supposed purchase of the Excelsior and J. I. C. claims by the Wedge people. The owners of these two former claims, who reside in Randsburg, vigorously deny any such sale. As a matter of fact, the Excelsior and J. I C. have been bonded to J. J. Brown, of Leadville, who, in turn, has sold and transferred this bond to the Wedge people, but upon what terms and conditions has not been stated.—*Miner.*

RIVERSIDE COUNTY.

John McGraff of the Dale district is in town. He owns four good claims about halfway between Dale City and the Iron Chief Mine and has been working them, just enough to pay expenses, with an arrastra and gasoline engine.—*Transcript.*

The owners of the Alice mine are not saying much but are working away steadily, and the results will soon tell their own story. The work of setting up a pumping engine is now in progress. The Los Angeles men who are interested in the mine with Messrs. L. M. and H. D. Wilson are expected soon.

SAN BERNARDINO COUNTY.

San Bernardino leads the counties of the state in the production of borax and cement.

Ferguson Bros. are erecting a 5-stamp mill on their mine in the Virginia Dale district. They have struck plenty water at 130 feet.

The first car load of ore shipped to the new mill at Barstow was sent down from the Kinyon Mine on the Rand district last week. There were 15¾ tons of ore in the car.

A new stamp mill is being erected at Dale City by Mr. Harn, another by Mr. Meachem, of Redlands, and Rich & Sherman will add another stamp to their mill. These, in addition to the new mill to be erected by J J. Arbois, will increase the returns from the Dale district, wonderfully.

The Colorado Iron Works Co., of Denver, Colo., have shipped all the machinery for the Randsburg-Santa Fe Reduction Co.'s new mill at Barstow, California. The total number of cars shipped were 16. This mill will be running in a short time.

COLORADO.

Cripple Creek Notes.

(Colorado Springs Investor.)

The new shaft house on the Johnson lease on the Matoa Company's ground is now completed and the new hoister working in good shape. The big hoister is good for over 1000 feet, and the buildings put up on modern plans. The 10 days' shipments of the month resulted as follows:

Number of tons shipped. 439.

Gross value of the output, $23,008.65.

Treatment, sampling and transportation charges, $6,359.61.

Net returns on the 10 days' shipments, $16,649.04.

Shipments by lessees on the Union Company's properties are on the increase. During the past week they have been recorded as follows:

From the Porcupine:—
- 3 tons, average value, $34.58 per ton.
- 2¾ tons, average value, $59.24 per ton.

From the Orpha May:—
- 10½ tons, average value, $29.07 per ton.
- 3½ tons, average value, $179 per ton.
- 6 tons, average value, $58.80 per ton.
- 2½ tons, average value, $55 per ton.
- 6 tons, average value, $61.80 per ton.

From the Pike's Peak:—
- 3½ tons, average value, $53.70 per ton.
- 3½ tons, average value, $86.80 per ton.
- 4 tons, average value, $67.60 per ton.
- 1 ton, value, $160.70 per ton.

At the Ready Cash, at the head of Prosser Gulch, near Empire, a new plant of machinery has been installed and a contract given for sinking a lift of 50 feet in the shaft, which is now down about 100 feet. The operators expect to cut the north vein in sinking this lift, as they have at present good indications.

New Mill at Boulder.

The new Culbertson concentrating mill, five miles east of Boulder, is now ready for business. The huge plant has 50 stamps. The first shipment of ore was received from the Dorchester mine at Caribou and was shipped by D. Strathmon.

IDAHO.

The April report of the De Lamar mine shows: Leached during the month, 1,831 tons; bullion produced from cyanide treatment, $16,661; surplus from cleanup of old mill, $3,000; estimated value of ore shipped to smelters, $2,000; miscellaneous revenue, $75; total produce of April run and cleanup, $21,736; total expenses, $21,226; balance of profit, $510; at $4.90 to pound sterling, £104.

At De Lamar the fourteen additional leaching vats have been completed and put in place in the De Lamar mill, bringing the full number up to 25, each of about 33 tons capacity. The full compliment of storage and sump tanks are set up, and as soon as the car tracks are completed and the connecting pipes are put in, the mill will be ready to work up to its increased capacity of 200 tons per day.

MICHIGAN.

The Franklin company has bought lot 3 in section 9, and lot 4 in section 10, T. 54, R. 33. Tract has about 60 acres, with nearly one mile frontage on Portage Lake.

The St. Mary's Canal Mineral Land Co. has sold to the Tamarack company the pine, spruce, cedar and tamarack timber on 20 square miles of land between Houghton and Ontonagon. Timber is to be removed within 10 years, for a consideration of $90,000 it is said.

MINNESOTA.

Minnesota will have an excellent display of its mines at the Omaha Trans-Mississippi Exposition. There will be a miniature section of a modern ore-shipping dock, on it a model ore car, while beside it will be a model of a modern 6,000 ton steel ship. There will be illustrations of steam shovel mines and milling process mines. The Fayal, probably the most advanced underground iron mine in the world, will be shown in a model of its surface workings, etc. Specimens of Minnesota ores will also be shown.

MISSOURI.

The Old Orchard Mining Company, operating two miles west of Joplin, has changed its name to Eastern Star Mining Company. The The new company is putting in a boiler, engine, Cook pump, crusher and rolls, and will shortly add steam jigs. The members of the company are all from St. Louis, Mo., except Al. Tor, the superintendent.

The J. A. Shepherd farm of 200 acres, two miles east of Joplin, has been sold to a company consisting of J. A. Stillwell, A. Baker, Captain E. O. Bartlett of St. Louis, T. J. Morgan and A. L. Johnson of Muncie, Ind., for $40,000. The land is to be thoroughly prospected by drilling, and, if ore is struck, will be leased out to operators for mining.—*Engineering and Mining Journal.*

MONTANA.

The Granite-Bi-Metallic Mining Company, at Phillipsburg, paid off last week, and while the pay roll was not large, the old Saturday night presented a much warmer appearance than it has for many months before.

At the Alice mine and mill, in Walkerville, 20 men were let out during last week, and 20 stamp heads stopped in the mill. This leaves a total of 40 heads altogether now at work. The suspension is owing to a temporary shortage of ore, and in all probability the men will be reinstated shortly. About 100 men are working on leases in the Alice and the Magna Charta.

The Royal Mining Company's mill started up for a run on some ore for the Plume Mining Company, with John Fletcher as superintendent, says the *Deer Lodge Silver State.* The ore to be worked is taken under lease from a property owned by M. O. Hankins and Vincent Doody, near the head of Little Gold Creek. Some ore will also be worked that was taken from the Royal properties, under lease to H. S. Neal, in all involving the operation of the mill two or three weeks.

Since 1892 there has been a gradual increase in our output of gold, the figures for the last year reaching $4,496,431. Since Montana has been mined for silver the output has fluctuated from $22,886,992 in 1895, the banner silver year, to $4,370,000, the output in that metal for 1882. The year 1881 was the banner year, the figures reaching $1,229,027. The copper output has steadily increased since 1893, the enormous amount of $26,797,915 being realized for that product last year. Since mining began in this state, now 36 years ago, there have been produced $273,533,727 in gold, $273,033,393 in silver, $217,487,224 in copper and $9,817,112 in lead, a grand total of $757,871,456.—*Helena Independent.*

NEVADA.

Two years ago Bull Run, Elko county, was thought of only as a silver camp. Now the Curieux mine, it is said, has more than 2,000 tons of ore in sight that will average $25 to the ton in gold. There are about 200 other claims in the district, all gold-bearing with very little silver.

Mines Sold.

The group of mines situated in Union district, near Ione, Nye county, and belonging to the Ione Gold Mining Co., were sold last week to "The Nevada Company," which recently secured control of the Ione mines. The price paid is given out at $200,000. The Nevada company is composed of capitalists of New York City, and J. G. Phelps Stokes is president of the company.

NEW MEXICO.

Output of Hillsboro gold mines for the week ending Thursday, May 26th, 1898, as reported for *The Advocate:*

	Tons
Wicks	10
K. K.	10
Richmond	10
Happy Jack	5
Snake Group	40
Opportunity	10
Sherman	5
Prosper	5
Eighty-five	—
Rex (silver-lead)	5
Total	100

Total output since Jan. 1, 1898.—3,330.

OREGON.

The Ashland-Mattern mine is running a full force of men and keeps its 10-stamp mill busy.

The Barron & Sheppard quartz mine, near Ashland, is having fifty tons of ore hauled to the Ashland mill.

Greer, Mackin & Co., contractors on the Lewis ditch, at Grave Creek, have a large force of men on their pay roll, and have already completed four miles of the ditch, and by next September the entire ditch of thirteen miles will be finished.

Brown & Hannum, proprietors of the Greenback mine on Grave Creek, brought in last week a lot of gold dust and nuggets which the Jewell Hardware Co. melted up in two gold bricks, one weighing $2500 and the other $1500; the result of crushing 16½ tons of ore by an arastra.

SOUTH DAKOTA.

Deadwood Notes.

The Barrett shaft, between Englewood and Dumont, has reached a depth of 280 feet.

There was recently encountered in the bottom of the Golden Crest shaft a body of argentiferous galena, containing considerable iron pyrites.

The Great Northern shaft, under the management of James D. Hardin, is being put down at a rapid rate. The bottom of the shaft is in lime shale at a depth of 185 feet.

The Holy Terror Mining Company is driving a drift from the 300 foot level of the main shaft in an easterly direction for the purpose of crosscutting the Keystone ledge. The shaft is being made a three compartment, and it is intended to hoist all ore mined in both the Keystone and Holy Terror through the latter's shaft.—*The Black Hills Mining Review.*

UTAH.

Operations at the Chloride Point mine are in full blast. The connections with the electric power line are promised the latter part of the week, and in that event the mill will commence operations immediately thereafter.

The owners of Four Aces property have recovered the vein and the future is brightening up a little for this company.

A dividend of 12½ cents per share will be declared by the Grand Central Mining Co. on the 5th, and will be payable on the 20th. The smelters paid the company $75,000 for ore shipped during the month of May.

Horn Silver maintains its regular shipments of high grade concentrates and crude ore.

Mammoth paid its regular dividend of $20,000 on the first. The mine is looking exceedingly well at present and official information says that the dividend is more than being earned.

Sunbeam has made a new strike of good ore and prospects are excellent for an increased production of ore this month.

The regular Silver King dividend of $37,500 was paid on the 10th. Sacramento paid its dividend of $5,000 on May 31st. The regular dividend of ½ cent. per share will be paid this month, but one cent is promised in July.

The Swansea Co. has declared its usual dividend of 5 cents per share, or $5,000. payable June 10th. This will carry the total dividend to $100,000. The directors of the South Swansea Mining Co. will meet about June 15 and declare the regular dividend of $7,500. Utah's last shipment of 22 tons is said to have netted the company in excess of $5,000.

The Colorado Iron Works Company, through their Salt Lake agent, A. M. Grant, have received an order from the Hanauer Smelting Company of Salt Lake City, for a 42"x144" smelting furnace.

WASHINGTON.

Stevens County Mines.

The owners of the Deep Creek mine, which is located 14 miles east of Northport, are considering the question of putting in a water jacket smelter of a capacity of 40 tons per day. On the properties of the company, which have been opened to a considerable extent, there are large deposits of silver-lead ore.

The prospects in the Independent in the Cody camp continue to improve. A shaft is being sunk on the Buffalo. The ledge is showing up well.

The tunnel in the First Thought is down about 160 feet. The ledge will be cut at about 200 feet.

The tunnel in the Quilp has made good progress during the week. The material passed through is of the most encouraging character.—*Spokane Miner and Electrician.*

FOREIGN MINING NEWS

BRITISH COLUMBIA.

The Deer Park.

At the Deer Park mine the shaft has attained a depth of 515 feet, and the bottom of the shaft is in pay ore, and in this there is a pay streak that is three feet wide. The ore is a white quartz carrying arsenical iron and gold.

The Ymir Mine.

A 40-stamp mill is about to be erected and worked at the Ymir mine, and for the setting up of this mill some forty tons of machinery are now arriving. It is stated that the Ymir mine has enough ore in sight to keep the proposed mill at work for ten months.

The Le Roi Mine.

The force at the Le Roi has been cut down by fifty men, in accordance with the change of the plans for working the mine. A number of men who have beeen stoping have been let out, but it is not likely that the force will remain below the old-time average long, as the development work that is to be undertaken will make it necessary to carry fully as large a crew as was working before the present temporary lay-off occurred. As soon as the new ownership takes the mine in hand, it is certain that renewed energy must and will be put into the working of the mine.—*B. C. Mining Critic.*

East Kootenay Mines.

During last week 260 tons of ore from the North Star mine were shipped from Fort Steele via the river steamers to the smelter at Great Falls, Montana. Meanwhile the smelter buildings at Golden still remain empty and unused.

A force of men has gone up to the Sullivan mine to resume work there. A good deal of development is to be done this summer.

GENERAL NEWS

Patents of Interest to Mining Men.

Messrs. Townsend Brothers, Solicitors of patents, 9 Downey Block, Los Angeles, California, report the following list of recent patents of interest to mining men :

May 17. 604,023.—Process of treating copper matte.—J. Colquhoun, Clifton, Ariz., filed Nov. 3, 1897. An improvement in the art of reducing copper by the Bessemer process, consisting in storing the matte in a reverberatory furnace, and adding slags from the converter in order to clean them.

May 17. 604,061. Ore-Concentrator.—W. E. Mendenhall, Flagstaff, Ariz. Assignor of one-half to Ezra S. Gosney, same place, filed April 28, 1897. This consists of a receptacle mounted to shake back and forth, and provided with a tier of concentrating trays being dish-shaped and discharging at the circumference, and the other trays being cone-shaped and discharging at the center.

May 17. 604,167.—Method of treating metallic ores.—S. C. C. Currie, Montreal, Canada, assignor to himself and Edward N. Dickerson, New York, N. Y. Filed Feb. 19, 1897. The process of extracting metals from their ores, which consists in treating the ore with a solution containing free chlorine and a hypochlorite, the former being in excess of the chlorine in the latter.

May 17. 604,152.—Rock Drill.—M. C. Jackson, Denver, Colo., assignor of one-half to H. D. Crippen, same place, Filed August 16, 1897. This consists of a drill operated by a power spring, and the invention comprises the mechanism whereby the drill is drawn back against the resistance of the power spring, and is partially rotated at each stroke.

May 17. 604,054.—Smelting Furnace.—H. Lang, Oakland, Cal. Filed Feb. 18, 1897. This consists of a circular homogeneous structure, formed of moulded refractory plastic material, comprising a hearth and an arch over the said hearth, dome-shaped within and flat without, having an inclined margin, and meeting said dome at the joining line at an acute angle, the structure being supported from the outside by vertical stays and supporting brackets fixed thereto and encircling adjustable elastic bands.

May 24. 604,627.—Apparatus for concentrating Gold-Bearing Sand.—A. McDougall, Duluth, Minn. Filed Jan 27, 1896. This comprises certain improvements in dredging apparatus, whereby the gold-bearing sand or gravel is raised from the bed of the frame by a barge suction pipe and is treated upon a barge or scow.

May 24. 604,566. Machine for separating Fine Gold Flakes from Sand.—J. N. Marion, Louisville, Ky. Filed Jan 25, 1897. Dry material is fed into a receptacle, and an air blast blows upwardly the finer portion of the sand and the flour-gold against a screen adapted to permit the passage through it of only the dust and flour gold; an exhaust fan collects the dust and flour gold and discharges it into a suitable receiver.

May 24. 604,502.—Stamp Mill.—E. Reynolds, Milwaukee, Wis. Filed, March 13, 1897. This relates to certain improvements in steam stamp-mills.

May 31. 604,978.—Centrifugal Amalgamator and Separator.—C. L. Garland, Sydney and John Murray, and Sampson E. Murray, Cowra Creek, New South Wales. Filed, July 8, 1897. A bowl, mounted on a central hollow shaft, having a feed hopper, the lower portion of said shaft being slotted to permit the material to fit into the bottom of the bowl, an inverted, funnel-shaped, amalgamating plate encircling the slotted portion of the shaft, and carrying the material downward into the bottom of the bowl; the bowl is provided with plates or discs projecting into a corresponding number of catch grooves or traps formed in the wall of the bowl.

May 31. 604,762.—Crusher.—A. Jordan, London, England. Filed, July 3, 1896. Patented in England, April 21, 1896. No. 8,386.—A rock-crusher, having one arc-shaped, rocking, crusher jaw, and the stationary jaw being mounted upon a spring, which permits it to reciprocate up and down as the crushing is effected.

May 31. 604,920.—Ore-Concentrator.—E. M. Rich, Silverton, Colo. Filed June 8, '97. Similarly-formed, funnel-shaped receptacles are inversely disposed and joined at their smaller ends. The flume empties tangentially into the upper receptacle, and the supply-pipe passes upward through the lower receptacle and is provided with a flaring mouth, discharging in the plane of the juncture of the two receptacles; a removable tray is placed in the lower receptacle.

May 31. 605,001.—Process of and Apparatus for Roasting and Separating Ores.—W. M. Morgan and F. E. Parker, Kansas City, Mo. Filed, Oct. 9, 1896. The process of treating refractory ores consisting first in roasting the ores with a flux and simultaneously drawing air through the heated ores, and separating the sulphur and arsenic and also the sulphides and arsenides from the ores, and then investing the slag containing the metal with a separate mineral after the separation in the furnace. The apparatus consists in the means whereby the process is carried into effect.

The Wonder Pump.

The want of a cheap pump for mining purposes has long been felt. While large producing mines can stand the expense of costly pumping machinery, the prospector and small miner must either go in debt for a pump or pump by hand. The Wonder is a spiral rotaro pump, consisting of two spirals, right and left handed, and is specially adapted for the miner who desires to keep his mine dry at a very small expense. Some of the great advantages of the Wonder pump are that it can be driven by rope transmission, will handle hot water, can be placed in mines in any position to suit the construction of the mine, and will handle soft mud with the water without and damage being done to the pump, as there are no values of any kind to wear out. A handsome catalogue has recently been issued containing much valuable information about pumps. By addressing the Wonder Pump Mfg. Co. Armour Bldg., Kansas City, Mo., these catologues can be obtained.

There can be no more convincing commentary upon the wide range of applications of compressed air power than the sales report of the Clayton Air Compressor Works, Havermeyer Building, New York, for the months of February, March and April. In all, nineteen Air Compressors were sold for operating pneumatic stone tools, chipping and calking tools, air hoists, etc.; nine air compressors for moving and elevating acid and chemical solutions; four air lift pumping plants were installed and placed in operation; three air compressors were furnished to rubber works for removing hose from mandrels, testing hose and inflating tires; one compressor was supplied for the pneumatic transmission of messages; two for oil-burning plants; three for racking off beer in breweries; one for spraying brick in the process of manufacture; and six for unusual applications of compressed air power.

In addition to this number of air compressors furnished for domestic use, four were exported to Europe for operating pneumatic shop plants.

Among the orders of especial interest interest included in the above summary, may be mentioned the plant installed at the navy yard, Brooklyn, New York, for supplying pneumatic drills, paint machines and hammers, and one furnished to the Yarrow ship yard, London, for operating pneumatic tools. Another installation of interest is the compressor at the Dunn Building, New York, which supplies compressed air dusting nozzles for cleaning the iron grill work of the elevator shafts.

Among the orders now in hand, is a large compressor for the Bath Iron works, Bath, Me., to operate pneumatic tools.

Mining Law.

The readers of the MINING AND METALLURGICAL JOURNAL will be pleased to know that all enquiries regarding mining law will be answered in the future through the columns of the JOURNAL by F. M. Jeffery, one of the leading mining attorneys of Los Angeles, Cal. The latest court decisions on mining cases will also be given.

Mineral Products of California.

State Mineralogist A. S. Cooper, reports the yield and value of the mineral substances of the State for 1897 as follows, as per returns received at the State Mining Bureau in answer to inquiries.

Antimony	25	Tons	$ 3,500
Asphalt	22,697	Tons	404,350
Bituminous Rock	45,470	Tons	128,173
Borax	8,000	Tons	1,080,000
Cement	18,000	Bbl.	66,000
Clay			
Brick	97,468	M.	563,240
Pottery	24,592	Tons	30,290
Coal	87,449	Tons	196,255
Copper	13,638,626	lbs	1,540,666
Gold			15,871,401
Granite	339,288	Cu. Ft.	188,024
Gypsum	2,200	Tons	19,250
Infusorial Earth	5	Tons	200
Lead	596,000	Lbs.	20,264
Lime	287,800	Bbls.	252,900
Limestone	36,796	Tons	38,756
Macadam	487,911	Tons	313,087
Magnesite	1,143	Tons	13,671
Manganese	504	Tons	4,080
Marble	4,102	Cu. Ft.	7,280
Mineral Paint	1 155,280	Lbs	8,165
Mineral Waters	1,508,192	Gals.	345,863
Natural Gas	63,920,000	Cu. Ft.	62,657
Paving Blocks	1,711	M.	35,235
Platinum	150	Oz.	900
Petroleum	1,911,569	Bbls.	1,918,269
Quicksilver	26,648	Flasks	993,445
Rubble	333,212	Tons	287,025
Salt	67,851	Tons	157,620
Sandstone	77,000	Cu. Ft.	24,086
Serpentine	2,500	Cu. Ft.	2,500
Silver			452,789
Slate	400	Squar.	2,800
Soda	5,000	Tons	110,000
			$25,142,441

In 1896 the total value of the mineral product of the State was $24,291,398 and in 1895 it was $22,844,664.

The relative rank of the Counties of the State, in point of mineral production, is given in the following table. In each case the value given includes that of all mineral substances combined produced in the respective counties for the year. Some counties produce in addition to gold and silver, five, six, or seven other substances, while other counties which yield little or no gold or silver, produce in large quantities, quicksilver, mineral oils, copper, lead, asphalt, structural materials, etc. The figures after the names of the counties indicate aggregate value of all mineral products for the year, including the precious metals. The term "undistributed includes total values of such substances as are grouped to avoid disclosing private business, as in the case of single operations in a county. In the large and complete tables published by the State Mining Bureau, from which these figures are taken, the amount and value of each substance in said county is set forth. It is therefore necessary in some cases to place the figures in the "undistributed" column.

1.	Shasta	$ 2,224,706
2.	Nevada	1,895,567
3.	Tuolumne	1,811,266
4.	Los Angeles	1,646,574
5.	Placer	1,578,637
6.	Calaveras	1,444,006
7.	Amador	1,368,770
8.	San Bernardino	1,312,780
9.	Trinity	1,107,961
10.	Kern	931,604
11.	Siskiyou	842,157
12.	El Dorado	685,313
13.	Butte	680,010
14.	San Diego	626,568
15.	Mono	598,480
16.	Napa	555,372
17.	Santa Barbara	481,382
18.	Mariposa	452,087
19.	Sierra	370,254
20.	Ventura	368,282
21.	Plumas	339,953
22.	Inyo	339,079
23.	Alameda	303,330
24.	Santa Clara	301,800
25.	Humboldt	290,551
26.	Santa Cruz	242,941
27.	Lake	211,131
28.	Sacramento	201,663
29.	Riverside	188,022
30.	San Benito	158,423
31.	Yuba	141,638
32.	Madera	124,427
33.	Sonoma	120,797
34.	San Francisco	114,717
35.	Fresno	114,334
36.	Contra Costa	106,380
37.	Marin	96,200
38.	San Joaquin	79,411
39.	Lassen	49,950
40.	San Mateo	40,000
41.	Stanislaus	39,217
42.	Solano	31,276
43.	San Luis Obispo	28,016
44.	Tulare	22,544
45.	Del Norte	16,710
46.	Orange	12,000
47.	Colusa	3,290
48.	Tehama	2,400
49.	Monterey	2,200
50.	Undistributed	438,264
	Total	$25,142,441

In 1897 all the antimony produced in California was from Kern county. Asphaltum was produced in Kern, and Santa Barbara counties. Bituminous rock in Santa Cruz and San Luis Obispo. Brick Clay in quantities was utilized in Alameda, Butte, Kern, Los Angeles, Marin, Sacramento, Santa Clara, San Joaquin, San Francisco and Shasta counties. The cement all came from San Bernardino. Clay for pottery was from Amador, Placer, Riverside, Sacramento and Solano counties. Coal from Alameda, Amador, Contra Costa and Riverside counties; and the copper from Calveras, Nevada and Shasta counties. The granite produced was from Madera, Nevada, Placer, Sacramento, San Luis Obispo, Solano and Tulare; gypsum from Los Angeles, and San Benito; infusorial earth from Los Angeles; and lead from Inyo and Mono counties. The lime and limestone came from El Dorado, Kern, Mono, Monterey, San Benito, San Bernardino, Santa Cruz, Shasta, Solano and Tulare counties. Macadam was quarried in large quantities in Alameda, Los Angeles, Marin, Sacramento, San Benito, San Francisco, Solano and Sonoma counties. The magnesite was all from Napa county, manganese from Alameda; marble from Amador and San Luis Obispo; and mineral paint from Calaveras, Sonoma, Riverside and Stanislaus counties. Mineral waters were bottled and sold from Butte, Colusa, Contra Costa, Fresno, Humboldt, Lake, Monterey, Napa, Santa Barbara, San Benito, Santa Clara, San Diego, San Luis Obispo, Sonoma and Tehama counties. The natural gas is mainly from San Joaquin, though a little is uttilized in Santa Barbara county. Paving blocks are from Sacramento, Solano and Sonoma. The platinum is from Siskiyou and Del Norte. Petroleum is from Fresno, Los Angeles, Orange, Santa Barbara, Santa Clara and Ventura counties. Quicksilver was produced in Colusa, Lake, Napa, San Benito, Santa Clara, San Luis Opispo, Sonoma and Trinity counties. Rubble in quantities was quarried in Humboldt, Placer, San Diego, San Francisco, Sacramento, San Luis Obispo and San Mateo counties. Salt came from Alameda, Colusa, Riverside and San Diego; sandstone from Colusa and Yolo; serpentine from Los Angeles; slate from El Dorado; and soda from Inyo. Many of these substances are found in other counties than those named but were only mined in 1897 in the counties stated. Only three counties produced as many as seven different mineral substances in 1897 and those were Los Angeles, Sacramento and San Luis Obispo.

PERSONAL NEWS ITEMS

W. O. Abbott, the well-known assayer and chemist, has returned to Tombstone, Ariz., from Pearce, Ariz., and will be prepared to do all kinds of assaying and chemical work.

Mr. Henry Johnson was in Ensenada, Lower California, last week from San Antonio. His wheat is an absolute failure this year, though there are some six hundred acres which, he says, might possibly pay for harvesting. However, his Socorro placer mines are yielding steadily, and he smiles over his ill-fated crop

Mr. Thomas Weir, manager of the Highland Boy smelter, is in New York State, and will not return to Utah till the latter part of June.

General Manager F. W. Bradley was in Spokane, Wash., from the Bunker Hill and Sullivan mines at Wardner, Idaho, during last week.

Chas H. Gibson, the mining operator, has been up to Nogales, Ariz., from the Altar district in Sonora, Mexico.

James H. James, a mining man from Chicago, arrived in Deadwood, last week, and will remain a few days investigating properties.

Robert Bartlett, of Midland, Texas, the well-known mining operator, past through Nogales, Ariz., last week, returning from his home in Texas to the scene of his operations in Sonora, Mex.

S. R. Nichols, of Butler, Penn., vice-president of the Salmon River and Porcupine Mining Company, of Spokane, Wash , has returned to Spokane from a trip of inspection to the property owned by his company, and is speaking very highly of it.

W. Weston, consulting mining engineer, of Colorado Springs and Cripple Creek, Colo., has just returned from a stay of six months in London, where he has opened a branch office. He has been appointed consulting engineer of the White Hills Milling and Mining Company, of Arizona, the owners of which are Manchester capitalists, and will visit British Columbia and Ontario during the summer for London financiers, returning to London at Christmas.

S. Bradley, receiver for the Union Hill Mining Company of Galena, Lawrence county, arrived in Deadwood, South Dakota, from Philadelphia last week.

A. B. Wood, mining operator of Detroit, Mich., was in San Francisco last week.

Mike Maloney has sold to O. B. Hardy his half interest in the Pena Blanca mine, in the Oro Blanco country, Sonoro, Mexico. John Maloney still retains his half. Good ore is being shipped from the mine.

D. C. Baker returned to Deadwood, South Dakota, from a business trip to Chicago last week.

W. D. Johnson, secretary of the International Mining Congress, to be held in Salt Lake City in July, was in Denver recently. He says there will be 2,000 delegates appointed for this meeting, and that it will be a greater success than the gathering of 1897.

Malcom McCallum, president of the Detroit and Deadwood Gold Mining Company, of Two Bit, South Dakota, arrived in Deadwood from Chicago, and will spend a week looking over the company's affairs in the hills.

W. Schuckman, who is operating in sluice mining on the Yaqui River, in Sonora, Mex., has been in Nogales, Ariz., en route to his home in Milwaukee, Wisconsin.

Gov. Budd has appointed these residents of Los Angeles as delegates to the International Mining Convention, to be held at Salt Lake City, July 6, 7 and 8: H. W. Duncan, U. S. G. Todd and C. C. Wright

Messrs. Patrick & Stewart, owners of the Garnet Queen mine, in the south-western part of Riverside county, Calif., recently placed a fine specimen of their ore in the Los Angeles Chamber of Commerce. It is composed of Garnet crystals, and carries free milling gold in paying quantities, forming one of the most peculiar gold-bearing ores brought to our notice for some time.

THE MARKETS.

NEW YORK, June 11th, 1898

The following are the Silver, Copper and Lead quotations for the last two weeks:

		SILVER.	COPPER.	LEAD
May	28	59⅞	11 50	3 55
"	30			
"	31	58	11 50	3 55
June	1	58⅝	11 50	3 60
"	2	58⅞	11 50	3 62½
"	3	59⅛	11 65	3 65
"	4	59¼	11 50	3 70
"	6	59⅛	11 50	3 70
"	7	59⅛	11 60	3 67½
"	8	59⅛	11 60	3 65
"	9	59⅛	11 50	3 62½
"	10	59⅛	11 50	3 62½
"	11	59	11 65	3 60

Silver is firm and has advanced to 26⅝d. under the impulse of Spanish requirements. It is not possible to ascertain the extent of these orders, and the future of silver is therefore uncertain.

The United States Assay Office in New York reports the total receipts of silver at 185,000 oz. for the two weeks ending June 4.

COPPER.

There has been rather more business doing during the past week, but at the expense of prices, which are again slightly lower. Lake is freely obtainable at 12c., and there are some rumors that even this price has been slightly shaded. Consumption continues rather large, but is not quite so heavy as it was during the two preceding months. The quotation for electrolytic copper is 11.50@11.60c. for cakes, wire-bars or ingots, and 11¼@11⅜c. for cathodes. Casting copper is quoted nominally at 11⅜c.

LEAD

The foreign market shows signs of weakness, and consumers are holding aloof. In consequence thereof values have again depreciated rather heavily and Spanish lead is quoted £13 10s.@£13 11s. 3d., with English lead 5s. higher. The latest sales are on a basis of 3.62½c. for common and 3.55c. for refined.

SPELTER

The good consumptive demand continues and the market is rather firm at 4⅛@4.15c., St. Louis, and 4.30c. New York: Spot spelter is rather scarce, and refiners have great difficulty at present in meeting their obligations.

ANTIMONY.

Antimony continues strong, and we quote Cookson's 9½c.; Hallett's, U. S. Star and Japanese, 8⅞.

NICKEL.

Business still continues on unchanged lines and no alteration in prices can be reported. We quote for New York ton lots 33½c. and 36c per lb and for smaller orders 35½c. and 38c.

TIN

The heavy arrivals have had a depressing influence, but nevertheless the demand remains good. We have to quote 13⅞@14c. for both spot and futures.

PLATINUM.

Prices are now quoted at $15 and $16 per oz., New York. The London quotations are 58 @ 60 s per oz. Supplies are not large and prices are firm. For chemical ware, best hammered metal, Messrs. Eimer & Amend of New York furnish the following quotations: In lots of 250 grams or more, 56c. per gram; in lots of 100 grams or more, 57c. per gram; less than 100 grams, 58c. per gram; unmanufactured platinum will be supplied in same quantities at 2c. less per gram.

QUICKSILVER.

The New York quotation are at $43.00 per flask.

The London price is £7. 12s. 6d. per flask

POWDER.

The market at San Francisco is fine with the current quotations.

The quotations are as follows:

For Hercules No. 1, from 11¾c. to 17¼c., according to strength and quantity. No. 2, from 9c. to 11c., according to strength and quantity.

COKE.

The market at San Francisco, Cal., is quoted as follows:

English, spot, in bulk	$11.00
" in sacks	12.00
Cumberland	10.00

BORAX.

The San Francisco market in Borax is firm with a good demand.

The market is quoted as follows

Refined, in carload lots, in barrels	7¼
Refined, in carload lots in sacks	7
Powdered, in car lots	7¼
Concentrated, in car lots	6¼

THE MINOR METALS.

Quotations are given below for New York delivery:

Aluminum:	
No. 1, 98 per cent. ingots, per lb	34@40c
No. 2, 90 " "	31@34c
Rolled sheets, per lb	38c. up
Aluminum.—Nickel, per lb	33@39c
Bismuth, per lb	$1.30@$1.80
Phosphorus, per lb	40@60c
Tungsten, per lb	70c
Perro-tungsten, 60 per cent	60c

Variations in price depend chiefly on the size of the order.

CHEMICALS.

There has been no material change in demand for heavy goods.

Quotations generally are as follows:

CAUSTIC SODA.

Quotations for Caustic soda domestic high test are $1.50 @ 1.55 per hundred lbs.

ALKALI.

Domestic, 58 per cent., 55c. @ 60c., foreign 55c. @ 60c. from dock as to style of package.

CARBONATED SODA ASH.

58 per cent., 90c and 95c. per 100 lbs. basis 48 per cent.

BI-CARBONATE OF SODA.

English, $2.12½ @$2.25 per 100 lb. American, bulk $1.25 and $1.50 per 100 lbs. according to brand.

SAL-SODA.

For domestic, 50c. per 100 lb., less usual discounts; English, 62½c, and 65c Concentrated sal-soda, $1.60 @ $1.65 per 100 lbs.

CHLORATE OF POTASH.

Chlorate of potash is quoted at $11 and $12 per 100 lbs

Acids.

The market for the following acids lacks interest; has practically been at a standstill, through prices are pretty steady and hold up well.

Prices are per 100 lbs. in New York and vicinity in lots of 25 carboys or over Quotations are as follows: Acetic acid, commercial No. 8 $1.40 @ $1.55; redistilled, 28 per cent., $2.00 @ $2.15; Muriatic acid, 18 per cent., 1.10@$1.75, 20° $1.20 @ $1.80; 22°, $1.35 @ $2.25, according to make and quantity. Nitric acid, 36°, $3.50 @ $4.75; 38°, $3.75 @ $4.62½; 40° $4.00@4.87½; 42°,

$4.62½@5.25. Oxalic acid, $6.50 @7.00 Mixed acids, according to mixture. Sulphuric acid, 66 per cent., $1.10 @$1.75. Chamber acid,50° $11.50@$12 per ton at factory. Blue Vitriol,$3.62½@$4.12½ according to grade and order.

BRIMSTONE.

Demand continues moderate. No arrivals are noted, and prices are about as last quoted. Best unmixed seconds, $35.00 for spot, while thirds are $32.50 per ton, respectively.

MURIATE OF POTASH.

We quote per 100 lbs. on basis of 80 per cent., as follows: New York and Boston, $1.75 for 80@85 per cent., and $1.78c. for 95 per cent.; Norfolk and Philadelphia, $1.76½ for 80@85 per ct., and $1.79½ for 95 per cent.; Charleston, Savannah, Wilmington, N. C, and New Orleans, $1.78½ for 80@85 per cent., and$1.81½ for 95 per cent. All for lots of 50 tons and upward.

KAINIT.

Invoice weights as taken at port of shipment per ton of 2,240 lbs. testing 12 4 per cent. actual potash, equivalent to 23 per cent. sulphate of potash, $8.55 for New York and Boston; $8.90 for Norfolk, and $9.05 for Charleston. Savannah, Wilmington, N. C., and New Orleans. Actual weights, ex vessel at port of importation are quoted $8.80, $9.15 and $9.30, respectively.

NITRATE OF SODA.

This is another of the contraband articles. Business is quiit among first hands, and spot goods are quoted at 2⅛@2¼c.; to arrive, June, 1⅞@2c., and later, at 1.70@1⅞c.

FINANCIAL NOTES.

The statement of the United States Treasury, on Thursday, May 26th, shows balances in excess of outstanding certificates as below, comparision being made with the statement for the corresponding date last week:

	May 26	Changes.
Gold	$173,235,502	D. $1,041,727
Silver	8,501,827	I. 1,361,616
Legal Tenders	29,837,961	D. 599,188
Treas'y Notes, etc	1,737,208	D 35,564
Totals	$213,714,298	D.$1,261,863

Treasury deposits with national banks amounted to $28,482,038, an increase of $254,81 i during this week.

Average Monthly Prices of Silver.

In New York per ounce Troy, from January 1st, 1898, and for the years 1897 and 1896:

Month.	1898 Cents.	1897 Cents.	1896 Cents.
January	66 77	64.79	67.23
February	66.07	64.67	67.67
March	64.90	63.66	68.40
April	66.02	61.85	67 92
May	66 08	60.42	67.78
June	—	60.10	68.69
July	—	59.61	68.76
August	—	58.19	67.84
September	—	57 21	65 68
October	—	57 67	64 15
November	—	57.91	64.93
December	—	58 01	65 21
Year		59.70	67.75

Gold and Silver Exports and Imports.

At all United States ports, April, 1898, and years from January 1st, 1898 and 1897

	Coin and Bullion Exp.	Coin and Bullion Imp.	In Ores Exp.	In Ores Imp.
Gold -				
April	$1,319,384	$32 768,674	$ 100	$223,184
1898	5,563,874	73,940,594	72,441	2,293,687
1897	7,910,115	2,504,939	91,808	1,399,054
Silver—				
April	1,040,309	541092	58,860	6,546,994
1898	16 851,846	1,913 793	133,604	6,466,342
1897	18,470,695	2,698,363	246,950	6,566,3[illegible]

This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Specie exports from San Francisco in April were larger than for the same month last year. For the four months ending April 30th, they were as follows:

	Gold	Silver	Totals
Hong Kong	$14,786	$1,450 262	$1,465,048
Shanghai	.....	140,344	140,344
India	.....	415,900	415,900
Honolulu	95,000	2,000	97,000
Central America	18,885	52,440	71,325
Total foreign	$128,671	$2,060,946	$2,189,557
New York	14,855,730	36,036	14,893,766
Totals	$14,984,341	$2,096,982	$17,083,323
Totals 1897	12,594,122	3,726,603	16,320,725

Responding to a resolution of inquiry, the Secretary of the Treasury has sent to the Senate a statement showing that on May 1st there were in the Treasury 109,355,514 oz. of silver bullion, the cost of which was $92,874,662 and the coinage value $141,363,089. The amount of Treasury notes issued in payment of silver bullion outstanding May 13th last was $102,294,280. Up to May 1st, $76,639,157 in silver dollars had been coined under the act of July 14, 1896.

While business has upon the whole a little more confident tone, there is still an uneasy feeling and uncertainty as to the future, which is sufficient to prevent new enterprises from meeting with much consideration; people are holding back until they can see some prospect of a termination of the war and of war contingencies. It is not fear of the ultimate result but doubt as to the time it will take to reach that result and its final cost.

POSITIONS WANTED

Advertisements of this class containing not more than five lines will be inserted for not exceeding three months in any year, free of charge, to all paid-up annual subscribers.

Other than above $1.00 per month will be charged

Advertisements not accepted for less than one month.

WANTED, by a young experienced man, position as quartz mill man, one who can keep mill running.
Address, A. E. CHARLESWORTH,
LOCKFORD, CAL.

WANTED, by a young man, a position as Assayer, etc; experienced, competent and has a good knowledge of all metallurgical operations. Good references.
Address, T. K. JOURNAL OFFICE,
Stimson Block, Los Angeles, Cal.

WANTED:—An experienced Engineer with practical knowledge of management of dynamos and electric lights. Also wanted an Assayer with practical knowledge of silver metallurgy. Address with references
VEKOL MINING CO.,
Vekol, Arizona

FOR SALE!

I HAVE some good gold mining properties for sale at reasonable prices, some developed and some real good properties at Ward, Eldora, Gold Hill, Jamestown, Magnetia, Caribon and Sugar Loaf. Write stating what you want or call on me.
JAMES M. NORTH,
Former County Judge,
BOULDER, COLO

MINING STOCK QUOTATIONS

BOSTON

Aetna Con	4 00	Humboldt	—
Allouez	—	Illinois Steel	40 00
Anaconda	—	Kearsarge	17 00
Arnold	3 00	Lake Sup Iron	—
Atlantic	22 00	Merced	4 75
Bonanza	—	Napa Cons	8 50
Boston and C C	—	New Idria Mg	—
Boston & Mont'a	35¼	Old Dominion	20 25
Butte & Boston	70 25	Osceola	34 50
Calumet & Hecla	460 00	Pioneer	5 00
Catalpa	—	Quincy	110¾
Centennial	15 50	Ridge	—
Central	—	San Ysabel	—
Dominion Coal	21 50	Tamarack Jr	—
Dominion Pref	124 00	Tamarack	126 00
Franklin	—	Tecumseh	3 00
Gold Coin	2 00	Wolverine	16 00

NEW YORK.

Alamo	03¼	Homestake	28 50
Alice	40	Iron Silver	—
Anoelia	45	Mexican	30
Best & Belcher	80	Mollie Gibson	10
Brunswick	05	Ontario	4 50
Bulwer	—	Ophir	—
Crown Point	05	Pharmacist	10
Con. Cal & Va	—	Plymouth	—
Cripple Creek Con	08¼	Quicksilver	3 00
Deadwood	—	Quicksilver pfd	11 00
Favorite	11 25	Sierra Nevada	—
Fortuna	04	Standard	1 80
Golden Fleece	45	Union Con	—
Gould & Curry	45	Yellow Jacket	—
Hale & Norcro s	—		

COLORADO SPRINGS STOCKS

Alamo	03½	Isabella	30
Anaconda	48	Iowa	—
Argentum Juanite	20	Jack Pot	05¼
Bankers	04½	Jefferson	09¾
Ben Hur	02¾	Mollie Gibson	23
C K & N	009½	Mount Rosa	—
C C & Manitou	52	Pharmacist	08¼
Creede & C C	—	Portland	70
C C Consolidated	09	Peoples	02¼
Garfield Grouse	04	Sacramento	02
Golden Fleece	30	Star of the West	—
Gold & Globe	—	Union Gold	22
Gold Standard	03½	Virginia M	02¾
Ibaley	200	Work	05
Ironclad	04½		

LOS ANGELES, CAL.

Amargosa	05	Lucky Star	—
Brown Dake	07½	Meggaenella	6 00
East Armagosa	10	Mohawk Action	80
Empire Copper	25	Old Dominion	03
Gold Bug	1 05	Pacific Con	1 25
Grand Central	02	Rand Mt	1 25
Iron Mt	02	Sun Dance	40
Laurel Mt	02½	Val Verde	1 50
Little Butte	15	Wedge	09¼

SAN FRANCISCO.

Alpha	—	Exchequer	—
Alta Con	10	Gould & Curry	24
Andes	24	Hale & Norcross	1 85
Belcher	33	Justice	55
Best & Belcher	35	Mexican	29
Bodie	—	Ophir	80
Bullion	10	Overman	—
Challenge	26	Potosi	48
Chollar	50	Savage	28
Confidence	85	Sierra Nevada	87
Con. Cal. & Va	1 0	Union Con	30
Con New York	—	Utah	07
Crown Point	17	Yellow Jacket	03

SALT LAKE CITY

Alice	90	Lucky Bill	—
Ajax	28½	Malvern	—
Alliance	10	Mammoth	1 77½
Anchor	50	Maxfield	—
Buckeye	00¾	Mercur	7 85
Bull, Beck	8 12½	Morgan	—
Cent Eureka	31 00	Northern Light	08¼
Chloride Point	01¾	Omaha	28
Dalton	06¾	Ontario	3 75
Daly	85	Overland	80
Daly West	3 50	Richmond Ana	—
Dalton & Lark	07½	conda	02½
Dexter	1 17½	Rover	15
Eagle	04½	Sacramento	70¼
Eureka Hill	—	Silver King	18 75
Four Aces	08¾	Sioux Con	—
Galena	55	Sunbeam	12
Gemini	—	Sunshine	30
Geyser-Marion	88	Swansea	2 22½
Grand Central	6 87½	So Swansea	1 25
Homestake	01¾	Utah	52
Horn Silver	1 25	Utah Con	—
Little Pittsburg	02¾		

ROSSLAND, BRITISH COLUMBIA.

Alberta	05	Josie Mac	12¼
B. C. Gold King	07	Josie	38
Beaver	10	Jumbo	75
Big Three	10	Knight Templar	05
Bluebird	07	Kootenay-London	10
Bruce	10	Le Roi	8 00
Butte	01½	Lily May	10
Caledonia Con	05½	Mabel	15
California	15	Mayflower	10
Camp Bird	05	Monita	10
Celtic Queen	55	Monte Christo	19¼
Centre Star	—	Morning Star	00
Colonna	24	Mugwump	03
Commander	10	Nest Egg	05
Deer Park	12½	Northern Belle	10
Della Colla	02	Novelty	00
Delaware	12	O. K	10
Eastern Star	30	Palo Alto	05
Enterprise	20	Phœnix	13½
Erie	03¾	Poorman	10
Eureka Con	05¼	R. E. Lee	15
Evening Star	03½	Red Eagle	00
Georgia	10½	Red Mount. View	—
Gertrude	16½	Red Point	10
Golden Drip	15	Rossl'd H'mest'ke	05
Good Hope	03½	Rossland, Red Mt.	20
Grand Prize	03¼	St. Elmo	08
Great Western	88	St. Paul	12½
Hattie Brown	—	Silver Bell	04
Helo	04	Silverine	00
High Ore	04¼	So Cross & W. Con	20
Imperial	10	Virginia	12
Iron Horse	20	War Eagle Con	1 00
Iron Mask	36	West Le Roi	21
I. X. L	10	White Bear	11

DENVER STOCK REPORT.

Aetna	003½	Elkton	92
Alamo	02½	Eureka	008
Anaconda	42	Garfield Grouse	04
Arcadia	004	Golden Fleece	25
" Consolidated	01¾	Goldsmith	008½
Argentum Juniata	27	Gold Standard	02½
Bangkok-C-Bell	02	Ibaley	003
Bankers	04	Iron Clad	02½
Ben Hur	02¾	Isabella	28½
Bob Lee	04¾	Jefferson	08½
Boston & C C	01¾	Mollie Gibson	70
Chimbarazo	002	New Zealand	05½
C. K & N	008	People's	01½
Colo. C. & M	01¾	Pharmacist	08¾
C C Con	06¾		

HELENA, MONTANA

Am Den & M Co	1 00	Helena & Frisco	8 00
Bald Butte	2 50	Iron Mountain	

Bi-Metallic	—	Merrill	—
Combination	—	Ontario	—
Con T & P'r'n	35	Yellowstone	11
Diamond Hill	—		

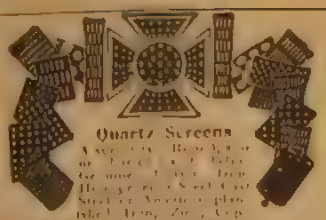
Name of Company	State	Price
Allanza	Hidalgo	8
Amistad y Concordia	"	23
Angustias	Guanajuato	710
Arevalo y Anexas	Hidalgo	240
Asturiana y Anexas	Zacatecas	250
Barradon y Cobras	Durango	300
Bartolome de Medina	Hidalgo	100
Cabezon y An	Zacatecas	30
Candelaria de Pinos	"	100
Candelaria de Pasuco	"	20
Candelaria de Chalch	"	80
Capuzaya	Durango	120
Carmen	Hidalgo	350
Castel ana y San Ram	Tepic	90
Cerro Colorado	Chihuahua	10
Cinco Senores y An	Guanajuato	650
Concepcion y Anexas	S Luis Potosi	200
El Oro	Guanajuato	40
Esperanza y An	Mexico	1 300
Guadalupe	Guanajuato	180
Hunutia	Santa Ana	100
Luz de Borda	Michoacan	30
Luz de Maravillas	Hidalgo	800
Palma	Zacatecas	150
Purisima de los Com	"	6
Real del Monte	Hidalgo	900
Refugio y Va	"	8
Rodeo y Va	Durango	80
Rosario y Anexas	"	50
San Francisco	Hidalgo	270
S. Ped. Chalchihuites	"	100
San Rafael y Anexas	"	925
do Free Stock	"	300
San Rafael del Oro	Hidalgo	20
Sta Maria de la Paz	S Luis Potosi	730
Sirena	Durango	80
Soledad	Hidalgo	400
Sorpresa	"	250
Trinidad	Guanajuato	40
Tlaxingo	Puebla	27
Union	Hidalgo	260
Zaragoza	"	15
Zomelahuecan (gold)	Vera Cruz	100
Zona Mia de Pozos	Guanajuato	15

NOTE—The above Mexican stocks are figured on the basis of Mexican silver

INCORPORATED MINES PAYING DIVIDENDS.

NAMES OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of last Dividend	Date of Last Dividend	Total Amount Paid in Dividends	Kind of Mineral Produced
Aetna Cons.	California	100,000	$ 500,000	$ 5	$ 10	Sept 1897	$ 110 000	Q.
Adams	Colorado	150,000	1,500,000	10	04	October 1895	693,500	S, L, C.
Alaska, Treadwell	Alaska	200,000	5,000,000	25	35/0	October, 1897.	3,250,000	G.
Alaska Mexican	Alaska	200,000	1,000,000	5	10	Oct., 1897	297,031	G.
Alice	Montana	400,000	10,000,000	25	03	Oct 1897	1,055,000	G.
Anaconda	Montana	1,200,000	30,000,000	25	1 25	May 1897	3,750,000	C.
Anchoria Leland	Colorado	600,000	600,000	1	01	Oct 1897	81 000	G.
American Gold	Colorado	300 000	3,000 000	10	02	Aug 1897	273,000	G. S. L
Atlantic	Michigan	40,000	1 000,000	25	1 00	Feb. 1897	710,000	S.
Bald Butte	Montana	250,000	250,000	1	03	Sept 1897	512,500	G, C. S.
Bangkok C-Bell	Colorado	600,000	600,000	1	01	July 1896	107,510	S. L. C.
Big Six	Colorado	500,000	500,000	1	00½	April 1897	5,000	G. S.
Boston & Montana	Montana	150,000	3,750,000	25	3 00	Aug 1897	6,275,000	G, C, S.
Bullion Beck and Champion	Utah	100,000	1,000,000	10	50	Mar 1897	2,185,000	G, S.
Bunker Hill and S	Idaho	300,000	3,000,000	10	05	Oct 1897	324 000	S. L.
Caribou	British Col.	800,000	800,000	1	02	May 1897	156 965	G.
C. O. D.	Colorado	50 ,000	500,000	1	01	March 1896	25,000	G.
Calumet & Hecla	Michigan	10,000	2,500,000	25	10 00	Oct. 1897	50,850,000	C.
Centennial Eureka	Utah	30,000	1,500,000	50	1 00	Mar 1897	2,010,000	S. L.
Central Lead	Missouri	4,000	400,000	100	1 00	Oct 1897	16,000	L.
Charleston	South Car	10,000	1,000,000	100	1 00	Feb 1897	150,000	
Champion	California	34,000	340,000	10	25	Aug 1897	278,000	G.
Consolidated, California and Virginia	Nevada	216,000	21,600,000	100	25	March 1895	3,592 800	G. S.
Copper Queen Consolidated	Arizona	200,000	2,000,000	10	25	June 1895	1,910,000	C.
Crescent	Utah	24,000	600,000	25		July 1897	280,000	
Daly	Utah	150,000	3,000,000	20	25	Mar 1897	2,925,000	S, L.
Deadwood Terra	Dakota	200,000	5,000,000	25	40	June 1897	1,320,000	G.
De Lamar	Idaho	400,000	2,000,000	5	25	Jan 1897	2,240,100	S, L.
Della S	Colorado	1,000,000	1,000,000	1	10	Jan 1897	60,000	G.
Doe Run	Missouri	5,000	500,000	100	50	October 1897		L.
Dalton and Lark	Utah	2,500,000	2,500,000	1	00½	August 1896	87,500	S, L.
Elkton Consolidated	Colorado	1,250,000	1,250,000	1	03	Sept 1897	3[illegible],960	G S.
El Paso	Colorado	650,000	650,000	1	01	Aug 1897	5,393	G. S.
Florence	Montana	500,000	2,500,000	5	01	May 1897	132,530	S
Galena	Utah	100,000	1,000,000	10	05	Jan. 1897	71,000	G, S, L
Garfield Grouse	Colorado	1,200,000	1,200,000	1	01	Feb. 1897	24 000	G.
Geyser-Marion	Utah	300,000	1 500,000	5	03	Nov 1897	51,000	G.
Golden Eagle	Colorado	1,000,000	1 000,000	1	01	Sep. 1896	10 000	G.
Golden Fleece	Colorado	600,000	600,000	1	01	Feb. 1897	569,179	G, S.
Gold Coin	Colorado	200,000	1 000,000	5	05	Aug 1897	150,000	G,S.
Gold and Globe	Colorado	750,000	750,000	1	3-10	July 1897	51 625	G.
Hecla Consolidated	Montana	30,000	1.500.000	50	50	Feb 1897	2,175,000	S, G, L, C.
Helena & Frisco	Idaho	500,000	2 500 000	5	04	August 1896	475,000	S, L.
Highland	S. Dakota	100,000	10,000,000	100	20	Oct 1897	3,121,918	G.
Holy Terror	S Dakota	300,000	300,000	1	03	Sept 1897	18,000	G.
Homestake	Dakota	125,000	12,500,000	100	25	Oct. 1897	6,131,250	G.
Hope	Montana	100,000	1.000,000	10	10	Nov 1897	732,252	S
Horn Silver	Utah	400,000	10,000,000	25	12½	January 1898	5,080 000	S, L.
Idaho	Brit. Col	500,000	500 000	1	05	Mar 1887	152,000	
Iowa	Colorado	1,000,000	1,000,000	1	00½	Oct. 1897	65 000	G
IronMountain	Montana	500,000	5 000,000	10	01	Sept 1897	497,500	S.
Isabella	Colorado	2,250,000	225,000	100	00½	June 1897	270,000	G.
Kearsarge	Michigan	40,000	1,000,000	25	10	Aug 1897	160 000	C.
Last Chance	Brit. Col.	500,000	500,000	1	04	Jan 1897	42,000	S. L.
Le Roi	British Col	500,000	2,500,000	5	10	Oct 1897	625,000	G.
Minnesota	Minnesota	165,000	16,500,000	100	1 50	July 1896	3,240 000	I.
Montana Ore Purchasing	Montana	40,000	1,000,000	25	01	October 1897	640,000	
Moose	Colorado	600,000	600,000	1	01	January 1896	186,000	G.
Morning Star	California	2,400	240,000	100	8 00½	Sept. 1897	558,600	G.
Mt. Rosa	Colorado	1,000,000	1,000,000	1	00½	Oct. 1896	30 000	G.
Mercur	Utah	200,000	5,000,000	25	12	Oct 1897	825 000	G.
Mammoth	Utah	400,000	10,000,000	25	05½	Nov. 1896	1,150,000	G, S, O.
Moon Anchor Gold	Colorado	600,000	600 000	1	02	Nov 1897	68 000	G.
New Elkhorn	Colorado	300,000	1 500,000	5	24	Sep. 1896	72,000	G
New York & Hon. Rosario	Central A	150,000	1,500 000	10	10	Oct. 1897	832,500	S, G.
Napa	California	100 000	700 000	7	20	Oct 1897	870 000	Q.
New Idria Quicksilver	California	100,000	500 000	5	10	Sept 1897	20,000	Q.
Ontario	Utah	150,000	15,000,000	100	10	June 1897	13,445,000	S, L.
Osceola	Michigan	50,000	1,250,000	25	1 00	June 1897	2,172,500	C
Parrot	Montana	230,000	2,300,000	10	06	June 1897	1,656,122	C.
Pennsylvania Consolidated	California	51,500	5,150,000	10	05	Sept 1897	20,750	
Portland	Colorado	3,000,000	3,000,000	1	01½	Oct 1897	1,163,000	G, S
Princess	Colorado	1,000,000	1,000,000	1	00	Feb 1897	45 000	G.
Quincy	Idaho	100 000	2,500,000	25	4 00	August 1897	9,470 000	C.
Rambler-Cariboo	Brit. Col	1,000,000	1,000,000	1	02	April 1897	40,000	
Reco	Brit. Col	1,000,000	1,000,000	1	50½	May 1897	187,500	S, L.
Sacramento	Utah	1,000,000	5,000,000	5	00	March 1897	22,000	G.
Small Hopes Consolidated	Colorado	250,000	5,000,000	20	10	Mar 1896	3,275,000	S.
South Swansea	Utah	150,000	150,000	1	05	Oct 1897	59,960	S, L.
Standard	California	200,000	20,000,000	100	10	Sept 1897	3,757,868	G, S.
St. Joseph	Missouri	250,000	2,500 000	10	15	Oct 1897	24,000	L.
Silver King	Utah	150 000	3,000,000	20	25	October 1897	1,237,500	S, L, G.
Slocan Star	Brit. Col.	2,000,000	1,000,000	0.50	05	Mar 1897	350,000	
Smuggler Union	Colorado	50 000	5,000,000	100	1.00	Oct 1896	150,000	G S.
Swansea	Utah	100,000	500,000	5	05	Oct 1897	61,500	S. L.
Tom Boy	Colorado	200,000	2,000,000	10	20	March 1896	410,000	G.
Tamarack	Michigan	60,000	1,500,000	15	3 00	June 1897	4,950,000	C.
Union	Colorado	1,250,000	1,250,000	1	01	June 1896	73,000	S.
United Verde	Arizona	300,000	3,000,000	10	25	December 1893	562,500	C.
Utah	Utah	100,000	1,000,000	20	02	Feb. 1897	175,000	G, S.
Utah Consolidated	Utah	30,000	150,000	5	02	Sept. 1896	3,000	S. L.
Victor	Colorado	200,000	1,000,000	5	10	March 1897	765,000	G.
Western Mine Enterprise	Montana	500,000	500,000	1	10	Mar 1897	12,000	
War Eagle	British Col.	500,000	500 000	1	08	October 1896	187 000	

S, Silver. G, Gold. L, Lead. C, Copper. Q, Quicksilver. I, Iron. B, Borax.



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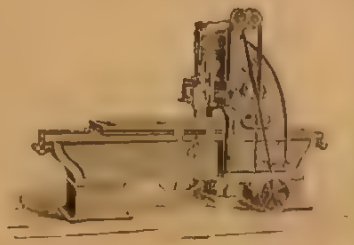

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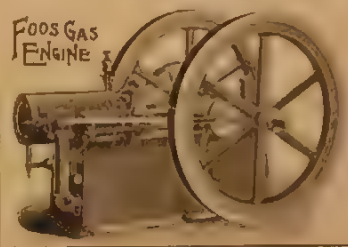

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